UK MET OFFICE
GLOBAL DATA MONITORING REPORT

June 2005

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Exeter. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Exeter in time for inclusion into the appropriate analysis (the current cut-off time is approximately 7.2 hours after each analysis time). The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background) field, although to provide background values valid at the observation time for non-main hour data, time-interpolation of the T+3, T+6 and T+9 forecasts is used; and for sea surface temperature the background field is the analysis from the previous day. Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1and 2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or sea surface temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIFTER observations received per day throughout the month at Exeter and assimilated into model runs. All data are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At the UK Met. Office, we monitor SYNOP pressure after it has been interpolated to our Global NWP Model's surface height. For most synoptic stations (about 75%), the surface pressure (at the model surface) is calculated from the reported station-level pressure, or, if this is not available, the height of a standard pressure-level (e.g. 850 hPa or 700 hPa). If neither of these are available, or if the reported station-level pressure is deemed unreliable, the reported mean sea-level pressure is used (about 25% of SYNOPs).

Aircraft observations

Tables 4A (300-150 hPa) and 4B (1000-301 hPa) contain lists of statistics calculated from data received from all airline carriers.

Figures 3A (300-150 hPa) and 3B (1000-301 hPa) show 10 degree lat/long box average numbers of aircraft reports in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS) received per day throughout the month at Exeter and assimilated into model runs. Observations with a vector wind difference (compared with the model background field) of >60 m s^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4A-7A (300-150 hPa) and 4B-7B (1000-301 hPa) show wind statistics for AIREP/ASDAR in AIREP/AMDAR code (including AIREP, ACAR, AMDAR, ASDAR and ADS). Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Exeter and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-39 show sounding statistics from the polar orbitting satellite NOAA-15. Figure 25 shows the mean daily number of ATOVS soundings, and figures 26-39 show mean and standard deviation observation-background differences for brightness temperature, for selected channels.

Figure		Weighting function peak (hPa)
26	Mean	Surface (HIRS8)
27	SD	Surface (HIRS8)
28	Mean	700 (HIRS15)
29	SD	700 (HIRS15)
30	Mean	500-700 (HIRS11)
31	SD	500-700 (HIRS11)
32	Mean	400 (HIRS4)
33	SD	400 (HIRS4)
34	Mean	700 (AMSUA5)
35	SD	700 (AMSUA5)
36	Mean	300 (AMSUA7)
37	SD	300 (AMSUA7)
38	Mean	100 (AMSUA9)
39	RMS	100 (AMSUA9)

Figures 40-54 show sounding statistics from the polar orbitting satellite NOAA-16. Figure 40 shows the mean daily number of ATOVS soundings, and figures 41-54 show mean and standard deviation observation-background differences for brightness temperature, for selected channels.

Figure		Weighting function peak (hPa)
41	Mean	Surface (HIRS8)
42	SD	Surface (HIRS8)
43	Mean	700 (HIRS15)
44	SD	700 (HIRS15)
45	Mean	500-700 (HIRS11)
46	SD	500-700 (HIRS11)
47	Mean	400 (HIRS4)
48	SD	400 (HIRS4)
49	Mean	700 (AMSUA5)
50	SD	700 (AMSUA5)
51	Mean	300 (AMSUA7)
52	SD	300 (AMSUA7)
53	Mean	100 (AMSUA9)
54	RMS	100 (AMSUA9)

Figures 55-69 show sounding statistics from the polar orbitting satellite NOAA-17. Figure 55 shows the mean daily number of ATOVS soundings, and figures 56-69 show mean and standard deviation observation-background differences for brightness temperature for selected channels.

Figure		Weighting function peak (hPa)
56	Mean	Surface (HIRS8)
57	SD	Surface (HIRS8)
58	Mean	700 (HIRS15)
59	SD	700 (HIRS15)
60	Mean	500-700 (HIRS11)
61	SD	500-700 (HIRS11)
62	Mean	400 (HIRS4)
63	SD	400 (HIRS4)
64	Mean	700 (AMSUA5)
65	SD	700 (AMSUA5)
66	Mean	300 (AMSUA7)
67	SD	300 (AMSUA7)
68	Mean	100 (AMSUA9)
69	RMS	100 (AMSUA9)

N.B. All satellite sounding data is bias-corrected (and thinned) before being assimilated in the UKMO NWP model.

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Exeter during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Exeter in DRIFTER code during the month for the area 10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Exeter from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 have been replaced by statistics for GOES-8 and GOES-9.
5. April 96. 500 km and 120 km SATEMs replaced by 120 km resolution temperature profiles produced locally from the radiances disseminated by NESDIS.
6. February 97 Monitoring statistics for Meteosat 5 have been replaced by statistics for Meteosat 6.
7. Sept 97 Monitoring statistics for NOAA-12 removed. Figures 25-27 now show data for NOAA-11
8. January 1998. Increase in resolution of UKMO global forecast model.
9. April 1998. GOES winds ceased on 2nd March 1998, and were replaced with GOES high resolution winds from 15th.
10. June 1998. Monitoring statistics for Meteosat-6 were replaced by monitoring statistics for Meteosat-7, from 3rd June.
11. June 1998. Corrections in our processing of radiosonde data resulted in a decrease in the number of 500hPa geopotential heights in Figure 8 of about 230 per 24 hours (compared with previous reports), and a small increase in the number of 300hPa winds in Figure 9.
12. July 1998. Meteosat-5 began transmitting winds from 2nd July, at 63 degrees East (over the Indian ocean), and this data is included in the statistics.
13. July 1998. GOES-9 (at 135W) was replaced mid-month by GOES-10 (initially at 105W, moving towards 135W).
14. February 1999. Problems with NOAA-11, and TOVS data ceased to be assimilated from 26 February.
15. March 1999. UKMO introduced 3-D VAR assimilation system on 29 March, and also began assimilating ATOVS data from NOAA-15.
16. May 1999. Included statistics for ATOVS sounding data from NOAA-15.
17. September 1999. Included statistics for high resolution visible winds from Meteosat-5 and Meteosat-7.
18. October 1999. The 3-D VAR assimilation system was upgraded on 19 October, including improvements in the assimilation of ATOVS radiances, use of SSM/I surface wind speed, an improvement in the calculation of surface pressure for SYNOPs, and thinning and revision of observation errors of aircraft data.
19. November 1999. High resolution visible winds from Meteosat-5 and Meteosat-7 removed until used operationally.
20. April 2000. Aireps in Table 4 and Figures 3-7 split into ranges 300-150 hPa (A) and 1000-301 hPa (B).
21. September 2000. Corrected an error affecting the mean positions of a minority of buoys in Table 2.
22. November 2000. An error in the production of Table 6 was corrected. Previously, some sondes with suspect vector winds were being missed.
23. April 2001. Included statistics for ATOVS sounding data from NOAA-16.
24. May 2001. Included statistics for sea surface temperatures from marine surface observations.
25. December 2002. Included statistics for ATOVS sounding data from NOAA-17.
26. December 2002. Meteosat-7 and Meteosat-5 SATOB winds replaced by higher resolution BUFR-coded winds.
27. November 2003. Included temperature and relative humidity statistics for ships, fixed buoys and platforms in Table 1.
28. November 2003. NOAA 17 statistics no longer available due to malfunction of the AMSU-A instrument.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: EXETER
MONTH: June 2005

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from UKMO global model.

Observation times :All hours

Elements monitored
:Mean sea level pressure (hPa).
:Wind speed (m s^{-1}).
:Wind direction (Degrees).
:Air temperature (Degrees C).
:Relative Humidity (%).
:Sea surface temperature (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:PGE :Percentage of observations with gross errors.

:%REJ :Percentage of observations flagged excluding those with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the wind observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT
:15 hPa (pressure)
:25 m s^{-1} (vector wind)
:15 degrees (air temperature)
:10 degrees (sea surface temperature)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1.|bias|	≥ 4 hPa	(pressure),
	≥ 5 m s^{-1}	(wind speed),
	≥ 30 degrees	(direction).
	≥ 3 degrees	(sea surface temperature).
	≥ 4 degrees	(air temperature)
	≥ 15%	(relative humidity)
2.SD	≥ 6 hPa	(pressure),
	≥ 80 degrees	(direction).
	≥ 5 degrees	(sea surface temperature).
	≥ 6 degrees	(air temperature)
	≥ 25%	(relative humidity)
3.PGE	≥ 25	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
AUFI	P	21	0	5	2.2	4.5	5.0
CGDS	P	207	0	99	3.0	-6.4	7.1
CSGN	P	96	0	100	0.6	-11.4	11.4
C6SE6	P	27	0	100	0.6	6.8	6.8
DGHX	P	24	0	33	1.1	5.0	5.1
D3EXQ9D	P	21	0	90	1.7	-4.1	4.4
ELZL5	P	20	0	50	1.6	4.2	4.5
HQTEST	P	255	0	44	0.5	-12.0	12.0
H9JT	P	47	0	30	1.1	-4.0	4.2
KS049	P	227	0	0	0.9	-4.3	4.4
PJVL	P	34	0	59	1.1	4.6	4.8
UCJL	P	20	10	100	2.1	8.0	8.3
UCTP	P	28	4	36	1.5	4.0	4.2
UDYG	P	94	0	62	2.0	6.4	6.7
UICP	P	29	17	83	5.2	5.5	7.6
VTKZ	P	21	0	86	1.3	-9.0	9.1
VTSQ	P	27	0	59	1.4	-4.9	5.1
VTXL	P	26	0	58	1.4	7.3	7.5
V2GR	P	22	0	0	0.7	4.3	4.4
WADZ	P	54	44	100	1.1	13.9	13.9
WDB3834	P	59	0	75	6.0	0.3	6.0
WDB9984	P	42	0	7	1.6	-5.7	5.9
9VIC4	P	24	0	25	0.8	4.2	4.3

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
C6QF6	SPEED	47	0	100	2.9	8.5	9.0
DBUY	SPEED	27	0	44	5.7	7.5	9.4
ELVP2	SPEED	41	0	100	5.2	10.4	11.6
H9YY	SPEED	63	0	100	5.0	5.4	7.3
JPPO	SPEED	24	13	83	3.7	8.7	9.4
MZHC8	SPEED	44	0	57	4.3	5.8	7.2
PBFC	SPEED	44	0	100	4.4	5.3	6.9
P3KT8	SPEED	43	5	65	6.0	12.7	14.1
V2AH1	SPEED	33	0	100	5.0	7.2	8.8
9MTE	SPEED	37	0	32	3.4	7.5	8.2

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
A8DO8	DIRN.	26	0	0	82.9	-23.4	86.2
ELWX5	DIRN.	236	0	0	31.3	-38.6	49.6
FNYF	DIRN.	36	3	0	85.5	-0.1	85.5
LMEL	DIRN.	80	0	0	93.9	-18.2	95.7
MZHC8	DIRN.	28	0	0	86.1	2.3	86.1
OVZV2	DIRN.	22	0	0	62.5	-31.6	70.0
3FZM6	DIRN.	21	19	0	107.0	-39.4	114.1

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
ELMA6	T	49	53	100	2.2	1.3	2.6
GDTT	T	27	37	100	1.2	0.2	1.2
KS044	T	20	90	100	4.7	5.8	7.5
KUU619	T	28	11	100	4.0	6.5	7.7
MASH6	T	51	0	100	1.5	4.7	5.0
OYZC	T	114	2	100	3.7	4.6	5.9
UCJX	T	32	0	100	4.4	-5.3	6.9
UCTP	T	28	0	100	1.7	4.0	4.4
UDDD	T	38	3	100	1.6	5.6	5.8
VDRV	T	26	0	100	3.4	6.7	7.5
VNVR	T	106	0	100	3.1	4.1	5.1
WCW9126	T	111	20	100	3.3	9.6	10.1
WCY2920	T	23	17	100	4.0	4.9	6.3
WDA2311	T	62	0	100	4.2	4.2	5.9

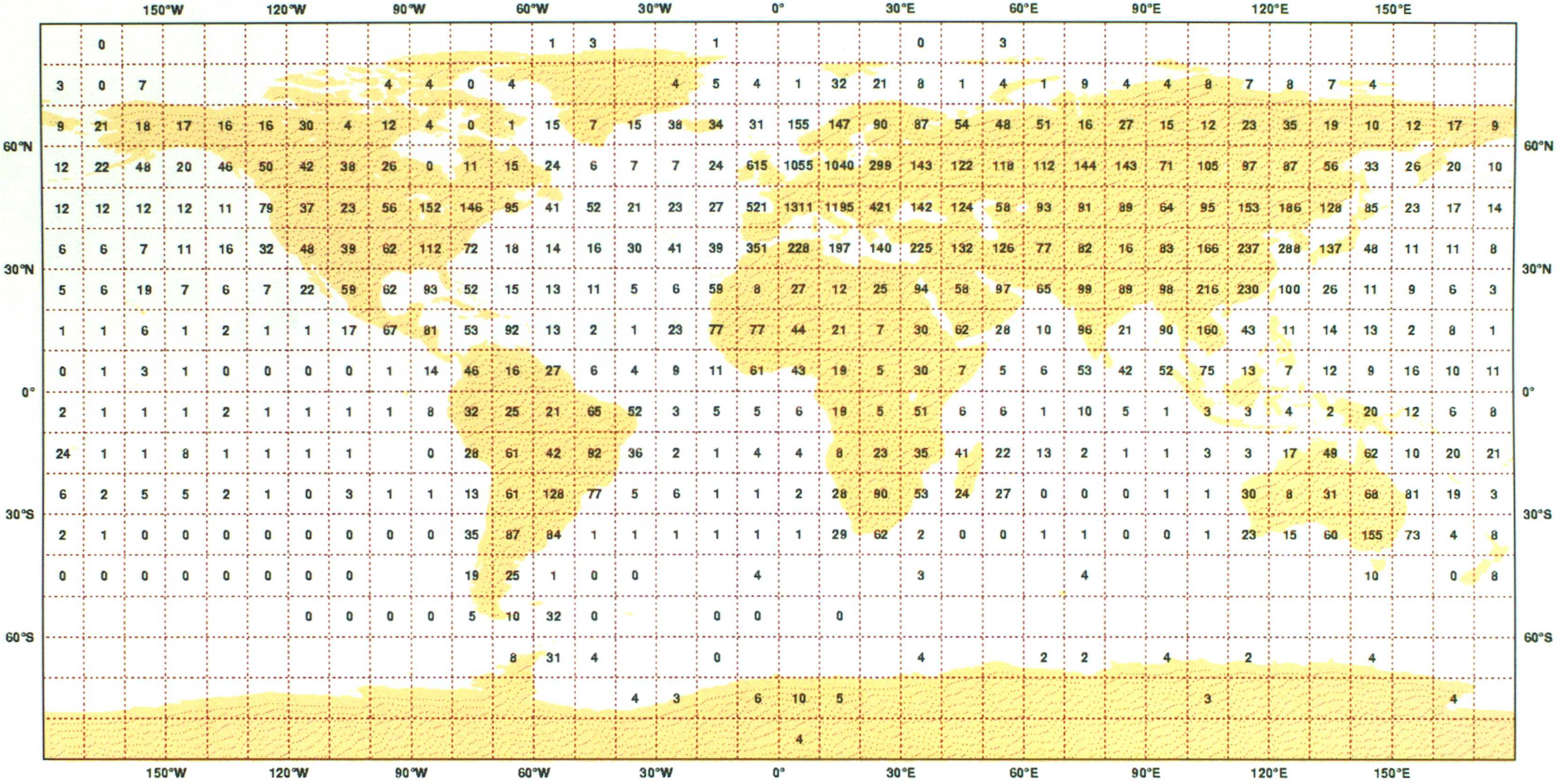
WDB6493	T	30	7	100	4.6	5.2	6.9
WMVC	T	34	18	100	3.7	9.7	10.4
WTEF	T	43	2	100	3.7	5.0	6.2
ZCBU6	T	29	14	100	4.9	4.7	6.8
45150	T	94	0	100	1.8	5.7	6.0
46081	T	706	6	100	2.2	10.4	10.7

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
A3CK5	RH	39	0	100	8.5	17.2	19.2
CSGN	RH	93	0	100	10.3	-17.1	20.0
DBBU	RH	627	0	100	17.6	-69.9	72.1
DGZO	RH	22	0	100	9.5	18.6	20.9
FNAT	RH	90	0	100	4.7	18.8	19.4
HPZR	RH	29	0	100	12.4	15.4	19.8
HQTEST	RH	238	0	100	12.8	-18.6	22.6
H8TS	RH	62	0	100	11.0	-15.1	18.7
OUEW	RH	178	0	100	17.2	-27.1	32.0
OZZE2	RH	93	0	100	18.9	-24.2	30.7
P3BA7	RH	48	0	100	10.8	-15.6	19.0
VKMZ	RH	26	0	100	10.9	22.3	24.8
VOPM	RH	33	0	100	19.3	-21.9	29.2
V2GR	RH	22	0	100	26.5	-21.2	34.0
ZUAB	RH	27	0	100	12.3	21.5	24.8
46054	RH	200	0	100	8.1	20.5	22.0

IDENTIFIER	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
A8BZ6	SST	52	0	48	2.1	-3.1	3.8
CG2522	SST	87	54	247	1.9	6.6	6.8
CG2960	SST	70	6	93	3.4	3.3	4.7
CG2992	SST	39	100	662			
C6RJ6	SST	39	0	100	0.7	-3.1	3.2
DIDY	SST	23	0	100	1.2	-4.3	4.5
ELMA6	SST	42	45	50	1.7	1.4	2.2
GDTT	SST	23	39	43	0.3	0.4	0.6
JADY	SST	63	0	100	1.1	3.2	3.4
KHRP	SST	28	0	61	0.5	3.6	3.6
KS049	SST	189	2	109	2.7	-3.6	4.5
KUU619	SST	26	54	92	2.1	6.9	7.2
LAIP5	SST	37	0	16	0.7	-3.3	3.4
MASH6	SST	49	0	100	0.7	4.8	4.8
NL9H	SST	72	0	0	0.3	-3.1	3.1
OYZC	SST	93	0	45	3.5	3.7	5.1
PJWQ	SST	49	0	100	1.3	3.0	3.3
S6IW	SST	63	0	100	1.3	-4.8	4.9
TSMU	SST	72	4	100	1.0	-7.3	7.4
UCCW	SST	36	8	61	3.2	4.8	5.8
UCJX	SST	26	0	73	1.7	-4.7	5.0
VDRV	SST	22	0	64	2.5	4.7	5.3
VLTT	SST	55	76	76	0.7	-0.1	0.7
VOPM	SST	39	0	51	1.7	3.2	3.6
VRYO7	SST	24	0	71	2.4	5.4	5.9
V7CZ6	SST	32	19	78	3.3	-3.4	4.8
V7HS2	SST	63	0	5	0.6	3.0	3.1
WAAH	SST	74	0	100	1.8	3.2	3.6
WCBP	SST	24	0	46	2.8	3.7	4.6
WGJF	SST	37	22	100	2.6	-6.2	6.8
WPVD	SST	26	0	100	1.9	3.1	3.7
WYQ8110	SST	24	0	42	1.7	3.8	4.2
3FKM8	SST	21	10	100	1.9	-3.9	4.3
3FMV4	SST	21	0	100	3.0	-6.0	6.7
3FPA6	SST	78	0	100	2.2	4.9	5.4
44039	SST	501	0	91	1.5	4.0	4.2

45007	SST	204	0	76	1.3	4.0	4.2
45012	SST	214	1	86	1.9	4.1	4.5
45135	SST	641	1	60	2.3	3.9	4.6
45139	SST	611	0	82	1.8	4.0	4.4
45145	SST	269	100	122			
45150	SST	73	0	100	0.3	5.5	5.5
45151	SST	623	8	97	2.5	5.8	6.3
45154	SST	644	7	100	1.4	6.3	6.5
46212	SST	387	0	63	0.8	-3.2	3.3
62164	SST	465	30	44	3.5	-0.2	3.5
9HCH7	SST	37	0	100	0.8	4.0	4.0

Figure 1. SHIP/SYNOP mean daily count. JUNE 2005
All hours
Global average number of observations in 24 hours = 20924



	0											1	3			1					0		3												
3	0	7						4	4	0	4				4	5	4	1	32	21	8	1	4	1	9	4	4	8	7	8	7	4			
9	21	18	17	16	16	30	4	12	4	0	1	15	7	15	38	34	31	155	147	90	87	54	48	51	16	27	15	12	23	35	19	10	12	17	9
12	22	48	20	46	50	42	38	26	0	11	15	24	6	7	7	24	615	1055	1040	299	143	122	118	112	144	143	71	105	97	87	56	33	26	20	10
12	12	12	12	11	79	37	23	56	152	146	95	41	52	21	23	27	521	1311	1195	421	142	124	58	93	91	89	64	95	153	186	128	85	23	17	14
6	6	7	11	16	32	48	39	62	112	72	18	14	16	30	41	39	351	228	197	140	225	132	126	77	82	16	83	166	237	288	137	48	11	11	8
5	6	19	7	6	7	22	59	62	93	52	15	13	11	5	6	59	8	27	12	25	94	58	97	65	99	89	98	216	230	100	26	11	9	6	3
1	1	6	1	2	1	1	17	67	81	53	92	13	2	1	23	77	77	44	21	7	30	62	28	10	96	21	90	160	43	11	14	13	2	8	1
0	1	3	1	0	0	0	0	1	14	46	16	27	6	4	9	11	61	43	19	5	30	7	5	6	53	42	52	75	13	7	12	9	16	10	11
2	1	1	1	2	1	1	1	1	8	32	25	21	65	52	3	5	5	6	19	5	51	6	6	1	10	5	1	3	3	4	2	20	12	6	8
24	1	1	8	1	1	1	1		0	28	61	42	92	36	2	1	4	4	8	23	35	41	22	13	2	1	1	3	3	17	49	62	10	20	21
6	2	5	5	2	1	0	3	1	1	13	61	128	77	5	6	1	1	2	28	90	53	24	27	0	0	0	1	1	30	8	31	68	81	19	3
2	1	0	0	0	0	0	0	0	0	35	87	84	1	1	1	1	1	1	29	62	2	0	0	1	1	0	0	1	23	15	60	155	73	4	8
0	0	0	0	0	0	0	0			19	25	1	0	0			4				3				4							10		0	8
						0	0	0	0	5	10	32	0			0	0		0																
											8	31	4			0					4			2	2		4		2			4			
														4	3		6	10	5									3						4	
																		4																	

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: EXETER
MONTH: June 2005

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoys.
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		: All hours
Elements monitored		:Mean sea level pressure (hPa).
		:Wind speed ($m\ s^{-1}$).
		:Wind direction (degrees).
		:Sea surface temperature (degrees).
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	: Percentage of observations flagged excluding those with gross errors
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the wind observation is veered to the background.**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT	:15 hPa	(pressure)	
	:25 $m\ s^{-1}$	(vector wind)	
	:10 degrees	(sea surface temperature)	
SELECTION CRITERIA :	NOBS	≥ 20 , and one or more of the following:	
	1.|bias|	≥ 4 hPa	(pressure),
		≥ 5 $m\ s^{-1}$	(wind speed),
		≥ 30 degrees	(direction).
		≥ 3 degrees	(sea surface temperature).
	2.SD	≥ 6 hPa	(pressure),
		≥ 80 degrees	(direction).
		≥ 5 degrees	(sea surface temperature).
	3.PGE	≥ 25.	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 $m\ s^{-1}$

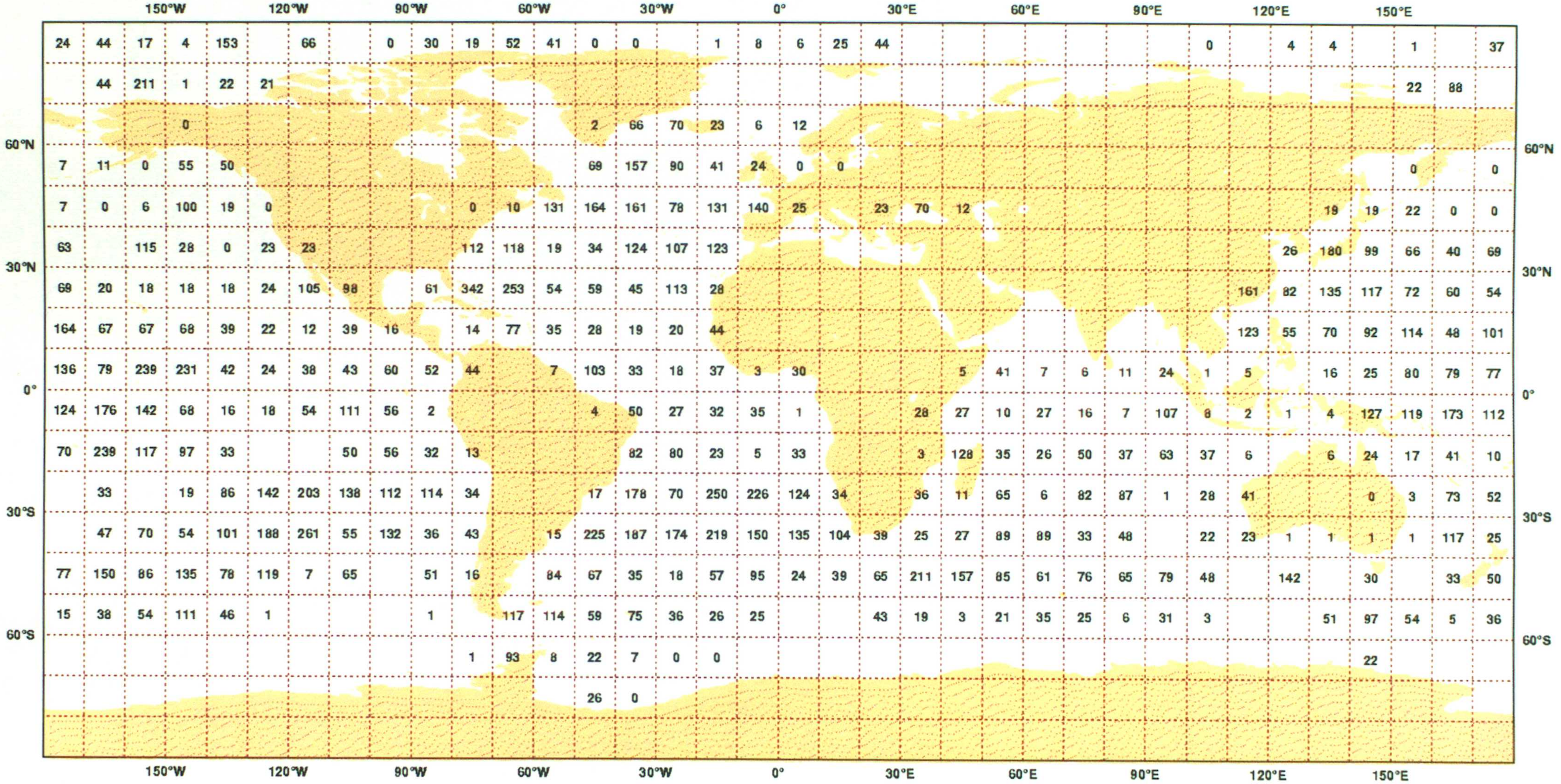
IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
14930	0.9	60.2	P	641	28	100	3.0	10.7	11.1
17910	-49.6	40.3	P	718	3	100	4.2	6.7	7.9
25569	82.0	-61.4	P	33	100	100			
25573	85.0	151.8	P	26	35	100	1.7	-10.6	10.8
31554	-20.6	-36.4	P	2213	0	96	2.4	-6.8	7.2
52527	10.5	141.2	P	698	100	100			
55920	-64.8	-66.6	P	759	45	70	6.5	-3.1	7.2
56504	-23.1	101.4	P	96	46	46	0.7	-1.1	1.3

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
41539	26.3	-71.2	SPEED	46	0	100	0.5	-5.5	5.5

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
52526	12.2	141.0	DIRN.	212	0	0	14.0	31.7	34.7
56506	-20.1	115.4	DIRN.	22	0	0	13.9	*****	131.5

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
15502	-18.0	-8.9	SST	131	0	100	0.1	-3.9	3.9
15504	-14.8	-13.7	SST	134	0	100	0.1	-4.0	4.0
15510	-12.4	-17.8	SST	137	0	100	0.1	-3.7	3.7
17559	-34.2	-13.3	SST	642	100	100			
32538	-5.8	-112.2	SST	445	0	100	0.1	-3.7	3.7
32620	-5.5	-124.8	SST	466	0	100	0.1	-4.0	4.0
32623	5.1	-77.8	SST	300	0	100	1.2	-5.0	5.1
32693	20.5	-178.9	SST	104	5	100	0.7	4.2	4.3
32741	3.9	-82.6	SST	399	0	100	0.3	-4.4	4.4
41912	30.8	-66.7	SST	590	0	100	0.2	-3.5	3.5
44509	42.6	-48.6	SST	454	50	100	3.5	-1.7	3.9
44723	63.0	-37.9	SST	689	0	66	3.5	5.1	6.2
44777	62.8	-21.9	SST	24	0	71	5.2	-0.4	5.3
46972	18.9	123.6	SST	256	0	100	0.6	5.7	5.7
51743	-0.8	-154.1	SST	140	0	100	0.1	-4.3	4.3
51747	5.8	-151.8	SST	145	0	99	0.3	-3.8	3.8
51748	-2.4	-156.9	SST	138	0	100	0.2	-4.0	4.0
51751	2.3	-155.9	SST	144	0	100	0.1	-3.8	3.8
51752	-5.5	-156.4	SST	135	0	100	0.1	-4.4	4.4
55627	-48.9	-75.7	SST	435	1	80	2.8	-4.7	5.5

Figure 2. DRIFTER mean daily count. JUNE 2005
All hours
Global average number of observations in 24 hours = 20844



24	44	17	4	153		66		0	30	19	52	41	0	0		1	8	6	25	44								0		4	4		1		37
	44	211	1	22	21																												22	88	
			0										2	66	70	23	6	12																	
7	11	0	55	50									69	157	90	41	24	0	0														0		0
7	0	6	100	19	0					0	10	131	164	161	78	131	140	25		23	70	12									19	19	22	0	0
63		115	28	0	23	23				112	118	19	34	124	107	123														26	180	99	66	40	69
69	20	18	18	18	24	105	98		61	342	253	54	59	45	113	28													161	82	135	117	72	60	54
164	67	67	68	39	22	12	39	16		14	77	35	28	19	20	44													123	55	70	92	114	48	101
136	79	239	231	42	24	38	43	60	52	44		7	103	33	18	37	3	30				5	41	7	6	11	24	1	5		16	25	80	79	77
124	176	142	68	16	18	54	111	56	2				4	50	27	32	35	1			28	27	10	27	16	7	107	8	2	1	4	127	119	173	112
70	239	117	97	33			50	56	32	13				82	80	23	5	33			3	128	35	26	50	37	63	37	6		6	24	17	41	10
	33		19	86	142	203	138	112	114	34			17	178	70	250	226	124	34		36	11	65	6	82	87	1	28	41			0	3	73	52
	47	70	54	101	188	261	55	132	36	43		15	225	187	174	219	150	135	104	39	25	27	89	89	33	48		22	23	1	1	1	1	117	25
77	150	86	135	78	119	7	65		51	16		84	67	35	18	57	95	24	39	65	211	157	85	61	76	65	79	48		142		30		33	50
15	38	54	111	46	1				1		117	114	59	75	36	26	25			43	19	3	21	35	25	6	31	3			51	97	54	5	36
										1	93	8	22	7	0	0																22			
													26	0																					

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: EXETER
MONTH: June 2005

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Surface pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged excluding those with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.|bias|	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

SUSPECT SYNOPS (PRESSURE) BY WMO REGION JUN 2005

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60320	35.9N	5.4W	2	MS	58	0	0	2	1.4	-8.3	8.4
60423	36.3N	8.0E	680	S8	87	87	100	66			
61492	16.1N	13.5W	18	MS	34	0	0	0	1.6	4.9	5.2
62056	32.8N	21.9E	625	S8	84	0	0	0	0.7	-5.4	5.4
63160	10.4N	45.0E	9	M	20	4	20	25	1.2	-4.5	4.7
63671	1.8N	40.1E	244	M	109	0	0	0	0.7	-4.7	4.8
63801	4.9S	29.6E	882	S8	34	0	0	6	3.4	6.8	7.6
63881	8.0S	31.6E	1923	S	36	1	3	0	0.5	12.8	12.8
67229	14.7S	34.3E	1270	S	39	6	15	74	3.2	12.1	12.5
67295	19.1S	33.5E	731	S8	45	2	4	69	1.5	13.3	13.4
68014	19.6S	18.1E	1411	S8	79	0	0	0	0.5	-7.7	7.7
68030	18.5S	25.6E	1071	S8	70	0	0	0	4.0	10.2	11.0
68102	19.9S	16.4E	1343	S8	110	0	0	0	0.5	5.4	5.4
68300	26.6S	15.1E	16	MS	56	17	30	0	0.5	-14.2	14.2
68312	26.5S	18.1E	1067	S8	78	0	0	0	0.7	4.5	4.6
68396	26.5S	31.3E	641	S8	55	0	0	4	1.3	4.5	4.7
68575	30.0S	30.0E	1175	S8	100	100	100	0			

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
30554	54.5N	113.6E	995	MS	119	1	1	0	0.8	11.7	11.7
36982	41.9N	78.2E	3635	S7	119	2	2	0	0.6	6.1	6.1
38565	40.6N	65.7E	485	MS	119	119	100	0			
38846	38.4N	70.0E	1437	S8	99	2	2	0	1.3	-5.4	5.6
40435	27.0N	44.1E	991	MS	59	1	2	2	1.7	7.3	7.5
40700	39.6N	47.9E	45	MS	114	1	1	0	0.9	-5.2	5.3
40713	37.4N	46.3E	1475	MS	115	6	5	0	1.0	13.0	13.0
40741	36.5N	61.2E	235	MS	115	0	0	2	1.3	-4.5	4.7
40743	36.2N	57.7E	978	MS	112	0	0	0	0.8	4.6	4.7
40780	33.6N	46.4E	1362	MS	117	1	1	0	0.8	5.2	5.3
40854	29.1N	58.4E	1067	MS	112	1	1	0	0.7	11.2	11.2
41252	23.4N	56.5E	244	MS	93	0	0	0	0.7	-8.9	8.9
41254	23.1N	57.6E	1755	S8	119	119	100	0			
41259	23.1N	57.2E	3009	S7	90	0	0	1	1.0	4.0	4.1
41396	16.0N	48.9E	700	MS	65	2	3	0	0.9	5.2	5.3
41466	13.7N	44.1E	1402	8	61	1	2	3	1.5	-5.6	5.8
47022	40.8N	128.2E	1224	S	93	0	0	0	0.8	5.1	5.2
47678	33.1N	139.8E	79	MS	119	0	0	0	0.8	-8.8	8.8
50978	45.3N	130.9E	234	MS	119	0	0	0	0.7	-5.8	5.8
53646	38.3N	109.8E	1058	MS	119	0	0	0	0.7	-11.6	11.6
56462	29.0N	101.5E	2994	S	119	0	0	0	1.1	8.4	8.5
56768	25.0N	101.5E	1773	S	119	0	0	0	0.8	-5.6	5.7
57816	26.6N	106.7E	1074	MS	119	84	71	0	0.4	-14.5	14.5
59663	21.8N	112.0E	22	MS	119	0	0	0	0.6	-7.4	7.4

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	122	MS	24	0	0	0	1.3	-5.4	5.6
82181	2.0S	54.1W	146	MS	83	0	0	0	0.8	5.1	5.2
82586	5.2S	39.3W	212	MS	87	0	0	0	0.8	-4.7	4.8
82704	7.6S	72.7W	170	MS	65	0	0	0	1.1	-4.5	4.6
83235	12.4S	46.4W	604	MS	79	1	1	0	0.6	6.0	6.0
83332	14.1S	46.4W	826	MS	77	2	3	0	0.5	13.5	13.5
83470	17.9S	50.9W	727	MS	76	0	0	1	1.3	-5.9	6.0
83531	18.6S	46.5W	940	MS	88	0	0	0	0.5	-7.0	7.0

83836	25.5S	50.6W	837	MS	88	0	0	0	0.6	-4.6	4.6
84401	5.2S	80.6W	49	MS	111	0	0	0	1.0	4.0	4.1
84425	5.9S	76.1W	179	MS	23	0	0	0	0.9	5.2	5.3
84452	6.8S	79.8W	29	MS	109	0	0	0	0.7	5.7	5.7
84455	6.5S	76.4W	281	MS	85	0	0	0	1.5	7.6	7.7
84472	7.1S	78.5W	2620	S	53	0	0	2	1.4	-5.9	6.1
84474	7.2S	76.7W	350	S	22	0	0	0	0.7	10.1	10.1
84501	8.1S	79.0W	26	MS	81	0	0	0	0.7	4.4	4.5
84686	13.6S	72.0W	3248	S	112	0	0	1	1.1	-4.3	4.4
84688	13.7S	73.4W	3444	S	48	0	0	0	0.4	-12.8	12.8
84782	18.1S	70.3W	468	MS	86	0	0	2	1.4	4.4	4.6
85140	14.3S	67.4W	140	MS	55	0	0	0	1.0	7.2	7.3
85264	18.5S	64.1W	1998	S	55	55	100	0			
85312	19.8S	63.9W	992	S	39	0	0	15	1.0	-12.6	12.6
85406	18.3S	70.3W	55	M	117	0	0	0	1.0	4.3	4.4

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
71060	52.5N	116.1W	230	MS	119	119	100	0			
71181	47.1N	55.3W	29	MS	105	0	0	0	0.8	-5.9	6.0
71581	54.5N	128.6W	215	MS	119	86	72	0	2.0	-12.5	12.7
71979	53.8N	118.4W	1542	M	39	0	0	100	0.5	9.2	9.2
76055	31.0N	114.9W	440	MS	64	64	100	0			
76225	28.6N	106.1W	1435	MS	84	0	0	0	0.6	-4.4	4.4
76382	25.5N	103.5W	1124	MS	85	0	0	0	0.7	4.1	4.2
76543	22.0N	98.8W	104	MS	83	1	1	1	0.7	9.4	9.4
76658	19.2N	103.7W	494	MS	40	0	0	0	0.9	5.9	6.0
76687	19.5N	96.9W	1389	MS	94	0	0	1	1.0	4.0	4.1
76762	17.5N	99.5W	1265	MS	84	2	2	1	1.8	5.5	5.8
76773	17.8N	97.8W	1650	MS	26	0	0	0	0.7	5.9	5.9
76843	16.8N	93.1W	528	MS	110	0	0	2	1.3	-5.1	5.3
78588	17.2N	87.5W	-256	M	113	113	100	0			

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
92010	6.1S	145.4E	1587	M	24	0	0	0	0.7	9.9	9.9
94130	14.8S	131.9E	120	MS	119	0	0	0	0.8	5.3	5.4
96505	3.7N	115.7E	-9999	8	49	48	98	0	0.0	0.1	0.1
97284	8.6S	120.5E	1170	S8	81	1	1	0	0.6	4.5	4.5
97378	10.7S	123.1E	1	MS	32	31	97	0	0.0	-12.3	12.3

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01360	61.9N	7.9E	711	MS	105	0	0	0	0.6	6.0	6.0
06239	54.9N	44.7E	49	MS	357	117	33	0	6.3	4.4	7.7
06685	47.0N	9.1E	515	MS	119	0	0	3	1.3	5.2	5.4
06780	46.8N	9.8E	2690	S7	119	0	0	0	0.7	4.2	4.3
08912	42.9N	0.8W	1434	MS	45	45	100	0			
08922	42.8N	0.2W	1660	MS	62	62	100	0			
10850	48.8N	10.7E	457	MS	357	0	0	0	0.5	-5.2	5.2
11116	47.5N	10.8E	870	MS	60	1	2	2	0.9	4.0	4.1
13269	44.3N	19.9E	176	MS	119	1	1	1	0.6	7.5	7.5
14554	44.9N	18.4E	136	S	60	0	0	0	0.8	-13.2	13.2
16344	39.3N	16.4E	1710	S8	299	0	0	0	0.9	5.3	5.4
16450	37.6N	14.3E	940	S8	86	0	0	36	2.1	-5.1	5.5
16538	40.1N	9.3E	1022	S	32	0	0	0	0.9	9.1	9.1
17203	38.9N	40.5E	1177	S8	119	0	0	0	1.2	4.4	4.6
17521	35.2N	33.5E	285	MS	107	107	100	0			
40030	35.1N	36.8E	301	M	97	0	0	0	0.8	-4.4	4.5

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89004	71.7S	2.8W	815	MS	110	0	0	0	1.4	-7.5	7.6
89257	75.4S	59.9W	40	S	630	0	0	0	1.7	-8.3	8.5
89266	72.2S	60.2W	91	S	304	303	100	0			
89512	70.8S	11.8E	140	MS	116	0	0	1	1.7	-4.6	4.9
89610	65.9S	113.1E	90	S	325	0	0	0	1.1	-9.4	9.5
89614	66.7S	111.5E	500	S	320	320	100	0			
89744	74.0S	43.1E	3353	S	318	0	0	0	0.7	7.1	7.1
89769	78.5S	168.4E	50	S	693	0	0	0	2.7	-5.0	5.7
89811	66.7S	112.8E	1366	S	324	0	0	0	1.5	-5.9	6.1
89868	79.9S	170.0E	60	S	331	0	0	0	1.8	-4.8	5.1

TABLE 4A

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: June 2005

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP.	:Number of observations received excluding duplicates.
:PG	:Percentage of observations with gross errors.
:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
:PC	:Percentage of observations with calm winds.
:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS".

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAH	3594	0	46	1.0	0.1	3557	0	46	0	5.2	0.6
AAL	6554	0	39	1.2	0.0	6119	0	41	0	5.2	0.3
AAR	990	0	5	1.4	-0.6	970	0	5	0	6.9	-0.5
ABD	50	2	18	1.3	-0.8	46	2	20	0	7.1	-0.1
ACA	2559	0	10	1.4	0.1	1956	0	12	0	7.4	0.1
ACI	127	0	13	1.1	0.2	127	0	13	0	4.9	0.0
AEA	1463	1	3	1.4	0.2	1230	0	4	0	7.1	0.2
AFL	718	1	3	1.8	0.0	414	0	2	0	6.6	0.7
AFR	1284	1	7	1.3	0.2	1282	0	8	0	6.8	0.2
AIC	53	2	2	1.4	-0.7	33	0	3	0	4.4	0.9
AJM	264	1	2	1.1	-0.3	223	0	3	0	6.1	-0.1
AJX	274	0	1	1.6	0.9	276	0	2	0	6.8	-0.2
AME	26	0	0	1.7	-1.1	26	0	4	0	7.4	1.3
AMT	2436	0	43	1.1	0.0	2400	0	43	0	5.3	0.2
AMX	518	0	3	1.6	0.2	457	0	5	0	8.5	0.1
ANZ	6138	1	33	1.4	0.1	6119	0	33	0	7.7	0.4
ARG	29	3	38	1.0	0.0	28	0	39	0	6.0	1.4
ATN	97	1	100	3.8	-2.3	75	0	9	0	6.4	0.4
AUA	52	2	29	3.9	2.9	45	0	9	0	7.9	-0.9
AVA	391	0	2	1.4	0.4	391	0	3	0	7.2	0.6
AVN	147	0	47	1.3	0.4	150	0	49	0	11.8	-1.3
AZA	592	1	5	1.5	-0.1	517	0	5	0	7.3	0.2
BAL	443	0	7	1.2	0.1	442	0	9	0	7.1	0.0
BAW	617	0	14	1.8	-0.6	391	0	17	0	8.6	0.2
BBR	207	0	3	1.6	0.6	205	0	2	0	6.2	1.1
BMA	127	0	2	1.1	-0.1	70	0	0	0	5.5	0.0
BPA	599	0	8	1.4	0.3	597	0	9	0	7.2	-0.3
BSK	31	0	32	1.8	0.0	21	0	33	0	4.0	1.1
BWA	309	1	5	1.4	0.4	271	0	7	0	7.7	0.7
CCA	352	2	18	2.4	0.4	370	1	100	0	11.4	-1.6
CES	592	1	6	1.5	0.0	589	1	8	0	8.3	0.9
CFC	26	0	4	1.3	-0.1	23	0	4	0	6.7	1.4
CFG	981	0	3	1.4	0.1	801	0	4	0	6.7	0.1
CKK	104	1	6	1.7	0.6	117	1	7	0	7.0	-0.3
CKS	279	0	32	1.7	0.2	232	0	34	0	7.9	-0.1
CLX	393	0	2	1.4	-0.4	241	0	3	0	5.1	-0.4
CNJ	50577	0	77	1.1	0.6	50577	0	77	0	4.9	0.5
COA	344	0	34	1.4	0.2	241	0	31	0	6.6	0.2
CRL	372	0	4	1.6	0.3	345	0	4	0	7.7	0.0
CSN	107	1	7	1.8	-0.1	109	2	6	0	5.7	0.5
CTM	23	0	4	2.4	-1.0	22	0	0	0	4.5	1.6
CUB	232	0	6	2.0	0.0	203	0	3	0	6.9	0.4
DAL	2965	0	44	1.3	0.3	2877	0	45	0	4.7	0.2
DCS	35	0	6	1.9	-1.2	24	0	4	0	5.1	1.4
DHL	61	5	100	6.4	-5.9	33	0	15	0	13.8	1.3
DLH	744	1	10	1.8	-0.1	707	0	10	0	7.4	0.5
DRD	395	1	5	1.7	0.0	394	0	4	0	6.6	0.4
EDW	80	0	0	1.1	0.0	67	0	1	0	5.7	0.6
EEZ	160	1	6	1.4	0.0	156	0	6	0	6.1	0.5
EIA	307	0	14	1.5	0.1	298	0	100	0	18.6	3.5
EIN	33	0	6	1.4	0.1	23	0	9	0	10.0	1.1
ELY	113	1	3	1.5	-0.3	72	0	7	0	7.7	1.1
ETH	29	0	7	0.8	0.0	30	0	7	0	3.9	1.0
EVA	136	0	1	1.2	0.0	149	0	3	0	6.2	0.5
FCA	249	1	5	1.4	0.0	206	0	4	0	6.7	0.1
FDX	1822	1	54	1.2	0.2	1650	0	54	0	6.3	0.4
FIN	457	0	4	1.7	0.2	364	0	4	0	7.0	-0.1
FJI	1014	1	31	1.7	0.6	997	0	31	0	7.8	0.1
FOM	830	1	26	1.4	0.1	833	0	26	0	6.6	0.7

		TEMPERATURE				WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
FWI	632	1	4	1.5	-0.4	639	0	3	0	6.4	0.4
GAF	38	0	3	1.9	-1.4	21	0	5	0	11.5	-0.5
GCO	111	0	11	1.1	0.2	109	1	100	0	10.9	1.2
GES	21	0	5	2.9	-1.2	21	0	0	0	5.3	0.7
GRL	108	0	2	1.8	0.2	96	0	0	0	3.6	0.4
GTI	181	3	26	3.4	1.5	173	0	14	0	7.1	0.4
HAL	4648	7	48	2.4	0.9	4550	0	40	0	6.4	0.2
HMY	27	0	41	2.4	0.2	25	0	36	0	4.6	-0.2
IBE	3893	0	4	1.5	0.5	3837	0	5	0	7.3	0.3
ICE	1215	0	3	1.5	-0.3	729	0	1	0	5.5	0.6
ISR	56	0	4	1.9	-0.2	38	0	3	0	6.6	-0.3
IWD	560	0	2	1.1	0.1	560	0	3	0	7.0	0.6
JAL	2056	1	5	1.5	0.3	2043	0	5	0	6.9	0.2
JAZ	810	0	2	1.4	1.0	811	0	2	0	6.4	0.2
JBU	61	3	3	0.7	0.1	58	0	0	0	5.1	0.4
KAL	1528	1	6	1.7	0.0	1520	0	6	0	7.3	-0.2
KIW	69	1	43	1.1	-0.5	69	0	42	0	6.6	-1.5
KLM	1383	0	8	1.4	0.0	1098	0	10	0	6.0	0.1
LAN	651	0	2	1.6	-0.2	649	0	3	0	5.7	0.8
LAP	40	3	55	3.2	1.4	39	0	46	0	11.4	2.1
LDI	330	1	2	1.3	0.3	277	0	2	0	6.4	0.2
LNE	113	2	6	1.9	0.4	114	0	3	0	7.4	1.6
LOT	653	0	3	1.7	-0.2	404	0	1	0	6.1	0.3
LTU	1088	1	6	1.5	0.0	918	0	6	0	6.5	0.5
LXR	36	0	3	1.9	-0.2	33	0	0	0	5.2	-0.3
MAS	291	0	5	1.4	-0.1	266	0	5	0	5.4	0.0
MON	56	2	4	1.1	-0.1	43	0	2	0	5.0	0.2
MPD	500	1	3	1.8	0.4	472	0	3	0	6.3	0.5
MPH	596	1	3	1.7	-0.9	458	0	3	0	7.2	-0.2
MXA	70	3	11	2.2	0.0	71	0	100	0	11.8	2.2
MYT	350	1	3	1.4	0.1	269	0	3	0	5.8	0.3
NAO	496	0	40	1.2	-0.3	492	0	41	0	6.2	0.5
NCA	1156	1	3	1.6	0.0	882	1	5	0	7.1	0.2
NWA	8685	1	16	1.8	0.2	8495	0	16	0	7.6	0.1
NZL	6340	0	8	1.2	-0.1	6340	0	8	0	4.7	0.3
OAE	431	0	26	1.4	-0.5	345	0	35	0	8.5	1.5
OOM	99	1	9	1.5	-0.4	57	0	11	0	6.7	-0.1
PAC	423	0	12	1.8	-0.3	391	0	10	0	6.1	-0.2
PAL	1502	0	9	1.3	-0.1	1442	0	10	0	7.8	0.5
PAO	319	0	57	1.8	0.5	319	1	57	0	11.2	1.7
PBI	718	1	36	1.4	-0.2	718	1	36	0	6.7	0.5
PLM	319	1	3	1.8	1.2	271	0	3	0	6.7	0.3
PUA	26	0	62	3.1	-0.2	26	0	62	0	15.0	-1.2
QFA	3966	0	41	1.3	0.2	3943	0	42	0	6.1	0.2
RAM	404	0	3	1.7	0.5	306	0	3	0	7.4	0.1
RCH	243	1	100	2.6	-0.2	200	1	100	0	12.8	2.2
RRR	42	2	10	1.4	0.5	44	0	9	0	7.1	-0.2
RYN	462	0	42	1.0	-0.1	453	0	43	0	5.7	0.3
RZO	865	1	6	1.5	-0.4	816	0	4	0	7.5	0.5
SAA	27	0	4	1.7	-0.2	27	0	0	0	5.4	0.4
SEU	139	0	1	1.2	0.0	123	0	2	0	6.3	0.0
SIA	412	0	5	1.4	0.3	411	0	5	0	5.0	0.7
SLM	148	0	1	1.1	0.4	146	0	1	0	4.1	0.3
SQC	49	0	6	1.2	0.2	49	0	6	0	4.4	-0.5
SSV	138	0	1	1.6	0.3	68	0	1	0	6.3	1.1
SVA	56	0	2	1.5	0.5	36	0	6	0	7.5	0.0
TAM	46	4	52	3.7	0.3	46	0	48	0	19.6	5.2
TAP	812	0	3	1.4	-0.2	744	0	3	0	7.2	0.7
TCV	22	0	9	1.6	1.3	22	0	9	0	8.0	-0.2

		TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
TCX	109	0	5	1.5	0.0	65	0	6	0	6.1	0.4
TFL	211	1	2	1.0	0.1	183	0	4	0	7.7	0.3
THA	302	0	5	1.5	0.1	297	0	5	0	5.6	0.5
THT	957	0	22	1.0	0.5	954	0	22	0	5.2	0.9
TPA	34	0	0	0.9	0.4	30	0	0	0	6.4	0.8
TSC	493	1	4	1.8	-0.6	337	0	4	0	6.7	0.0
TUB	102	0	3	1.8	-0.1	39	0	0	0	5.6	0.7
UAE	628	0	5	1.4	0.2	624	0	5	0	4.8	0.7
UAL	7575	0	53	1.1	0.0	7497	0	53	0	5.0	0.4
UPS	2084	1	58	1.4	0.0	2022	0	58	0	6.5	0.4
USA	81	0	6	1.8	0.6	73	0	4	0	6.4	0.3
UTY	44	0	43	1.0	-0.3	44	0	43	0	4.5	0.8
VHF	31	6	10	1.7	0.0	36	0	0	0	5.8	-0.6
VIR	82	0	4	1.9	0.1	43	0	2	0	6.9	0.1
VPB	33	0	18	3.0	-1.2	27	0	15	0	7.9	0.7
VRG	79	3	42	2.9	0.2	79	0	100	0	14.8	4.1
VVJ	85	1	11	1.8	-0.3	87	0	11	0	9.8	0.3
VVR	72	0	32	1.4	0.3	72	0	32	0	5.2	0.9
WOA	424	1	12	1.5	0.3	368	0	14	0	9.3	-0.1
XLA	179	1	3	1.2	-0.1	171	0	5	0	8.5	-0.2
YSS	94	1	3	1.4	-0.2	93	0	3	0	6.7	-0.5

		TEMPERATURE					WIND				
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AU	44077	0	16	1.2	0.6	44077	0	16	0	5.2	0.6
B-	13601	0	63	1.6	0.8	10744	0	67	0	6.4	-0.3
CA	822	0	65	2.1	1.1	791	0	65	0	6.2	-0.4
EU	220630	0	27	1.2	0.4	220629	0	27	0	4.4	0.3
HK	3821	0	22	1.1	0.4	3821	0	22	0	4.8	0.1
HL	22	5	18	1.8	-0.3	22	0	14	0	6.3	1.2
JP	53059	0	62	1.4	0.8	53059	0	61	0	5.6	0.1
LN	25	0	48	1.1	-0.7	24	0	50	0	9.7	1.8
MK	2617	0	4	1.9	1.7	2615	0	5	0	7.3	1.4
SA	4268	0	6	1.1	0.5	4268	0	6	0	6.0	0.4
TN	60	2	17	2.1	1.5	59	0	22	0	8.0	1.1
UA	306211	0	98	1.1	-0.1	305985	0	98	0	5.1	0.6
N	1112	1	16	2.1	0.4	815	0	19	0	7.1	1.0
US ACARS	1137820	0	67	1.3	0.4	1137802	0	66	0	5.4	0.7

TABLE 4B

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: June 2005

Monitoring procedures

Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:All hours combined.
Level(s) monitored		:1000.0 – 300.1 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored		
	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.
GROSS ERROR LIMITS		:10.0 °C ; 60 m s^{-1} Vector Wind
SELECTION CRITERIA		:N REP ≥ 20

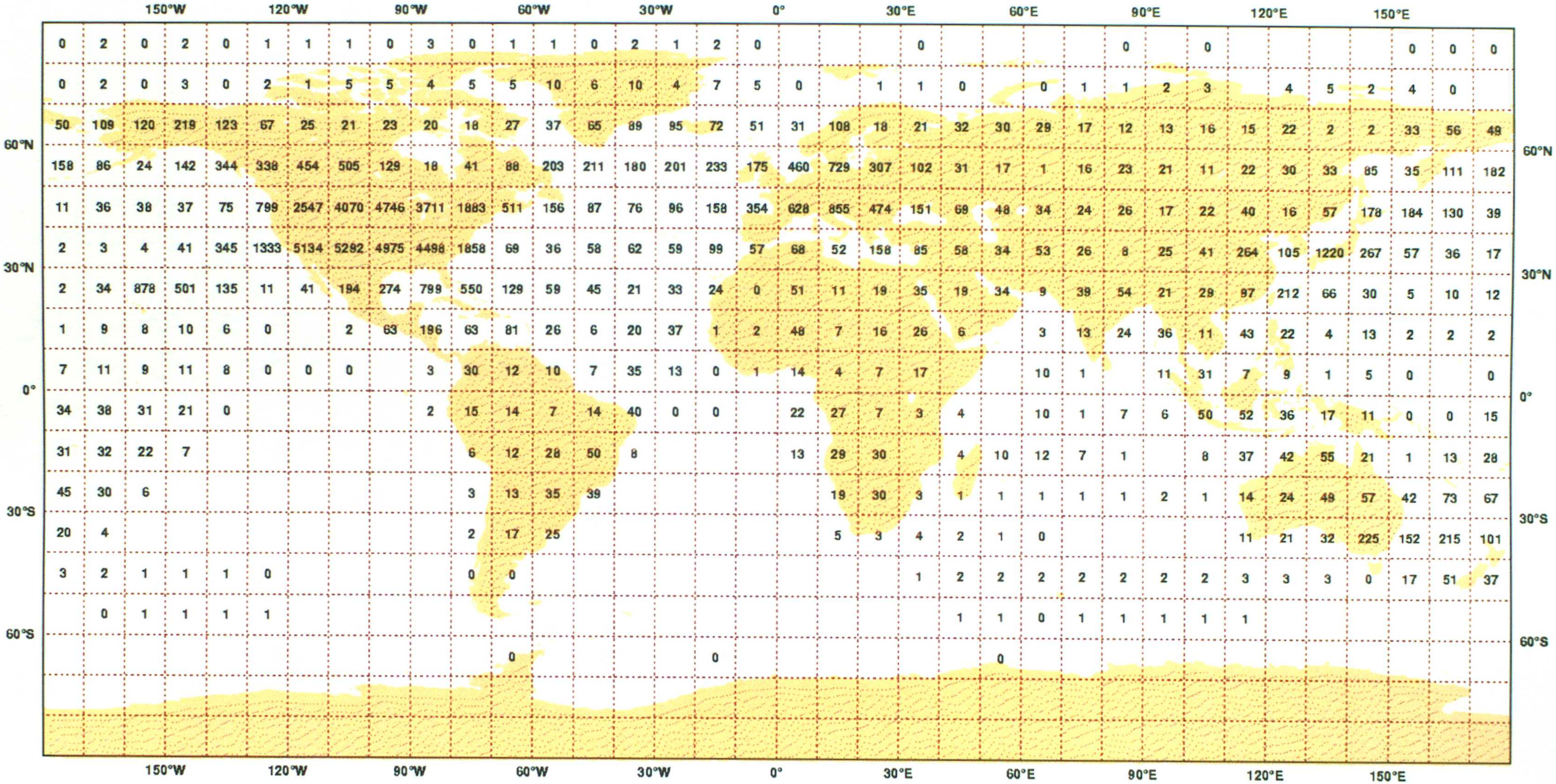
NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS".

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	101	0	48	2.0	-0.4	97	0	49	0	8.5	1.7
AAR	20	0	20	1.4	-0.7	20	0	20	0	9.5	-2.6
ACA	72	3	24	1.2	-0.1	63	0	33	0	11.4	1.0
AFR	50	0	8	1.2	0.5	51	0	8	0	5.4	1.1
AMT	63	0	27	1.0	0.3	61	0	30	0	8.5	2.2
ANZ	302	4	30	1.9	0.0	305	0	28	0	8.6	1.0
AXF	20	0	55	1.0	0.0	20	0	55	0	8.5	-1.7
BAF	62	2	5	2.0	0.4	54	0	2	0	7.0	1.0
BAL	31	0	0	1.0	0.1	31	0	3	0	6.8	2.7
BAW	23	0	13	1.6	-1.0	21	0	19	0	10.8	-0.3
CFC	48	2	8	2.1	1.1	38	0	5	0	4.9	1.4
CKS	69	0	30	1.3	0.2	58	0	34	0	7.8	2.0
CNJ	621735	0	84	1.8	0.7	621735	0	85	0	4.9	0.2
CWC	87	3	8	2.0	-0.1	56	2	21	0	13.0	2.9
DAL	76	3	51	2.1	-0.5	77	0	43	0	3.5	0.9
DLH	242	0	13	1.2	0.1	246	0	13	0	6.7	0.4
EIA	98	0	16	1.0	0.2	97	0	100	0	23.7	5.4
FDX	727	0	38	1.3	0.3	543	0	35	0	8.2	0.5
FOM	28	0	50	1.3	0.6	28	11	54	0	5.7	2.1
FXI	36	0	19	4.1	2.4	35	0	3	0	5.9	0.3
GCO	167	0	15	1.3	0.2	164	1	100	0	12.7	0.8
HAL	320	3	48	2.9	1.3	315	0	43	0	6.5	1.6
ICE	49	0	4	1.0	0.0	27	0	4	0	4.6	0.9
JAL	52	8	10	1.4	0.1	51	0	6	0	7.0	-0.5
JAZ	30	0	3	1.4	1.0	29	0	3	0	3.6	-0.1
KAL	66	3	18	1.9	-0.5	67	0	13	0	6.4	-0.6
KIW	64	0	39	1.9	0.9	64	0	41	0	10.7	1.3
KLM	44	0	5	1.2	0.1	32	0	9	0	11.0	1.2
LAN	44	0	7	1.1	0.1	45	0	7	0	5.1	0.9
MAS	36	0	19	0.9	0.1	35	0	20	0	4.8	-0.3
MPH	65	2	2	1.5	-0.5	44	0	5	0	9.1	0.4
NCA	78	0	3	1.9	-0.3	75	0	1	0	5.8	-0.2
NWA	389	3	12	1.9	0.0	384	0	9	0	7.8	-0.4
NZL	24258	0	55	1.0	0.3	24257	0	55	0	4.3	0.1
OAE	30	0	10	1.1	-0.2	21	0	24	0	11.3	4.1
PAC	28	0	7	1.5	-0.8	25	0	12	0	13.9	-4.2
QFA	191	1	49	2.1	-0.1	189	0	46	0	5.5	-0.1
RCH	52	0	100	3.7	0.4	37	0	100	0	10.9	-0.2
RRR	115	8	29	3.5	2.1	116	0	15	0	8.7	0.1
SIA	82	0	4	1.1	0.6	83	0	4	0	4.9	0.3
THA	27	0	4	1.2	0.6	25	0	4	0	3.3	0.1
THT	46	0	70	1.0	0.1	46	0	70	0	7.4	1.5
UAE	78	1	5	0.9	0.4	78	0	5	0	5.5	0.4
UAL	84	0	36	1.3	0.1	84	0	36	0	8.4	-0.1
UPS	129	0	55	0.9	-0.1	128	0	55	0	6.8	0.3
WOA	177	0	6	1.3	0.2	130	0	17	0	12.6	3.0

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AU	51767	0	60	1.3	0.7	51769	0	60	0	4.1	0.3
B-	76961	0	76	1.4	0.0	71224	0	76	0	4.5	0.4
CA	5474	0	75	1.3	0.2	5331	0	75	0	4.3	0.4
EU	700342	0	70	1.0	0.2	696179	0	70	0	3.5	0.0
HK	4850	0	76	1.2	0.0	4850	0	76	0	4.4	0.4
JP	271576	0	81	1.2	0.2	271576	0	81	0	4.1	0.6
MK	2816	0	49	1.2	0.6	2816	0	49	0	4.6	0.7
SA	3479	0	55	1.3	0.3	3479	0	55	0	4.0	0.0
UA	257890	0	98	1.0	-0.2	257638	0	98	0	3.9	0.4

IDENT.	N.REP.	TEMPERATURE PG	PR	RMS	BIAS	N.REP.	PG	WIND PR	PC	RMS	BIAS
N	43	26	33	3.0	1.5	29	0	10	0	11.4	0.7
US ACARS	1651839	0	79	1.1	0.2	1646172	0	80	0	3.8	0.4

Figure 3a. AIRCRAFT 300 - 150 hPa mean daily count. JUNE 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Global average number of observations in 24 hours = 64582



0	2	0	2	0	1	1	1	0	3	0	1	1	0	2	1	2	0				0					0		0					0	0	0
0	2	0	3	0	2	1	5	5	4	5	5	10	6	10	4	7	5	0		1	1	0		0	1	1	2	3		4	5	2	4	0	
50	109	120	219	123	67	25	21	23	20	18	27	37	65	89	95	72	51	31	108	18	21	32	30	29	17	12	13	16	15	22	2	2	33	56	49
158	86	24	142	344	338	454	505	129	18	41	88	203	211	180	201	233	175	460	729	307	102	31	17	1	16	23	21	11	22	30	33	85	35	111	182
11	36	38	37	75	799	2547	4070	4746	3711	1883	511	156	87	76	96	158	354	628	855	474	151	69	48	34	24	26	17	22	40	16	57	178	184	130	39
2	3	4	41	345	1333	5134	5292	4975	4498	1858	69	36	58	62	59	99	57	68	52	158	85	58	34	53	26	8	25	41	264	105	1220	267	57	36	17
2	34	878	501	135	11	41	194	274	799	550	129	59	45	21	33	24	0	51	11	19	35	19	34	9	39	54	21	29	97	212	66	30	5	10	12
1	9	8	10	6	0		2	63	196	63	81	26	6	20	37	1	2	48	7	16	26	6		3	13	24	36	11	43	22	4	13	2	2	2
7	11	9	11	8	0	0	0		3	30	12	10	7	35	13	0	1	14	4	7	17			10	1		11	31	7	9	1	5	0		0
34	38	31	21	0					2	15	14	7	14	40	0	0		22	27	7	3	4		10	1	7	6	50	52	36	17	11	0	0	15
31	32	22	7							6	12	28	50	8				13	29	30		4	10	12	7	1		8	37	42	55	21	1	13	28
45	30	6								3	13	35	39						19	30	3	1	1	1	1	1	2	1	14	24	49	57	42	73	67
20	4									2	17	25							5	3	4	2	1	0					11	21	32	225	152	215	101
3	2	1	1	1	0					0	0										1	2	2	2	2	2	2	2	3	3	3	0	17	51	37
	0	1	1	1	1																	1	1	0	1	1	1	1	1						
											0					0							0												

Figure 3b. AIRCRAFT 1000 - 301 hPa mean daily count. JUNE 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Global average number of observations in 24 hours = 122043

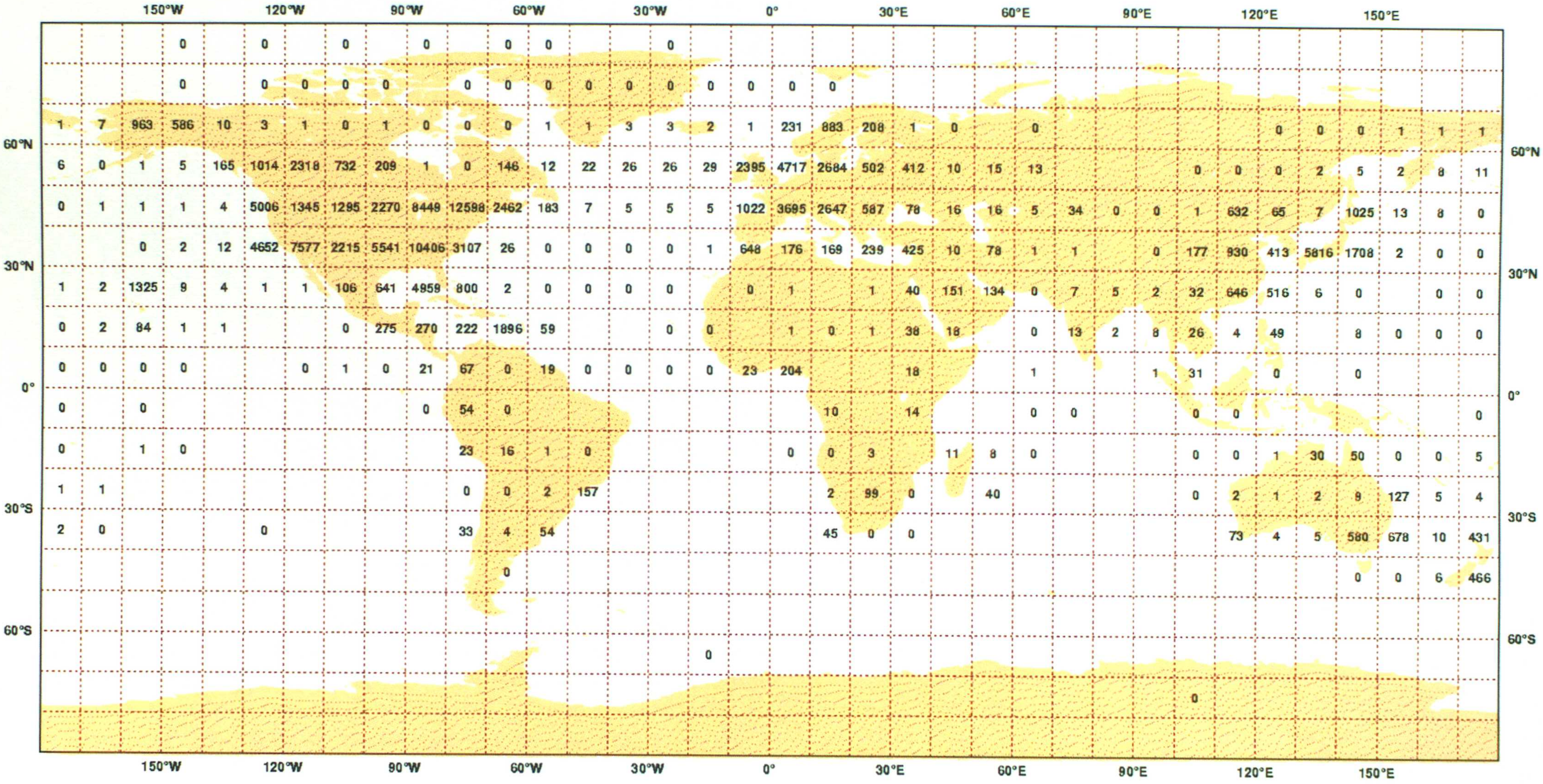

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
1 7 963 586 10 3 1 0 1 0 0 0 1 1 3 3 2 1 231 883 208 1 0 0 0 0 0 1 1 1
6 0 1 5 165 1014 2318 732 209 1 0 146 12 22 26 26 29 2395 4717 2684 502 412 10 15 13 0 0 0 2 5 2 8 11
0 1 1 1 4 5006 1345 1285 2270 8449 12598 2462 183 7 5 5 5 1022 3695 2647 587 78 16 16 5 34 0 0 1 632 65 7 1025 13 8 0
0 2 12 4652 7577 2215 5541 10406 3107 26 0 0 0 0 1 648 176 169 239 425 10 78 1 1 0 177 930 413 5816 1708 2 0 0
1 2 1325 9 4 1 1 106 641 4859 800 2 0 0 0 0 0 1 1 40 151 134 0 7 5 2 32 646 516 6 0 0 0
0 2 84 1 1 0 275 270 222 1896 59 0 0 1 0 1 38 18 0 13 2 8 26 4 49 8 0 0 0
0 0 0 0 0 1 0 21 67 0 19 0 0 0 0 23 204 18 1 1 31 0 0
0 0 0 54 0 10 14 0 0 0 0 0
0 1 0 23 16 1 0 0 0 3 11 8 0 0 0 1 30 50 0 0 5
1 1 0 0 2 157 2 99 0 40 0 2 1 2 9 127 5 4
2 0 0 33 4 54 45 0 0 73 4 5 580 678 10 431
0 0 0 6 466
0
0

Figure 4a. AIRCRAFT 300 - 150 hPa mean winds. JUNE 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

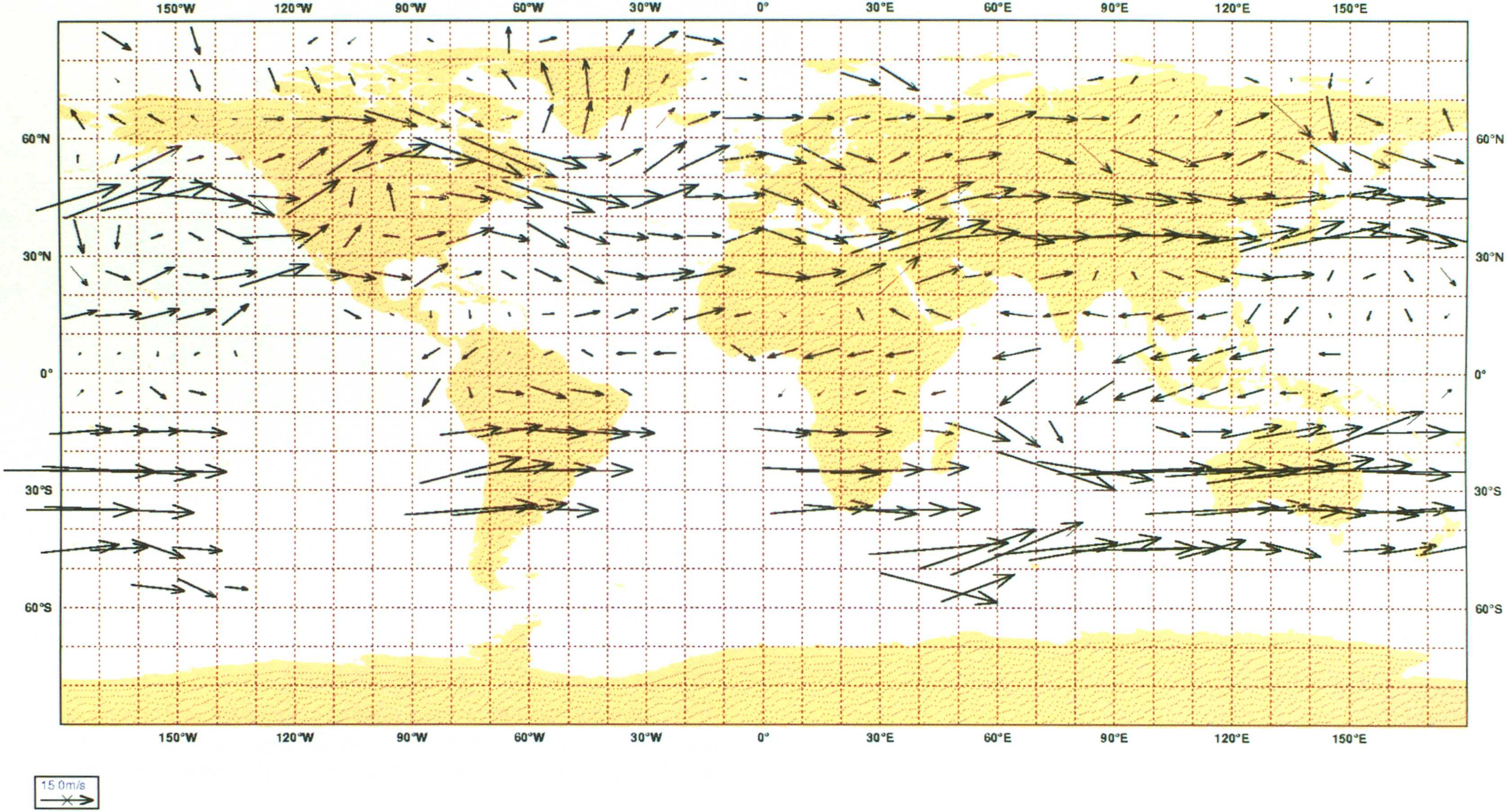

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 4b. AIRCRAFT 1000 - 301 hPa mean winds. JUNE 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

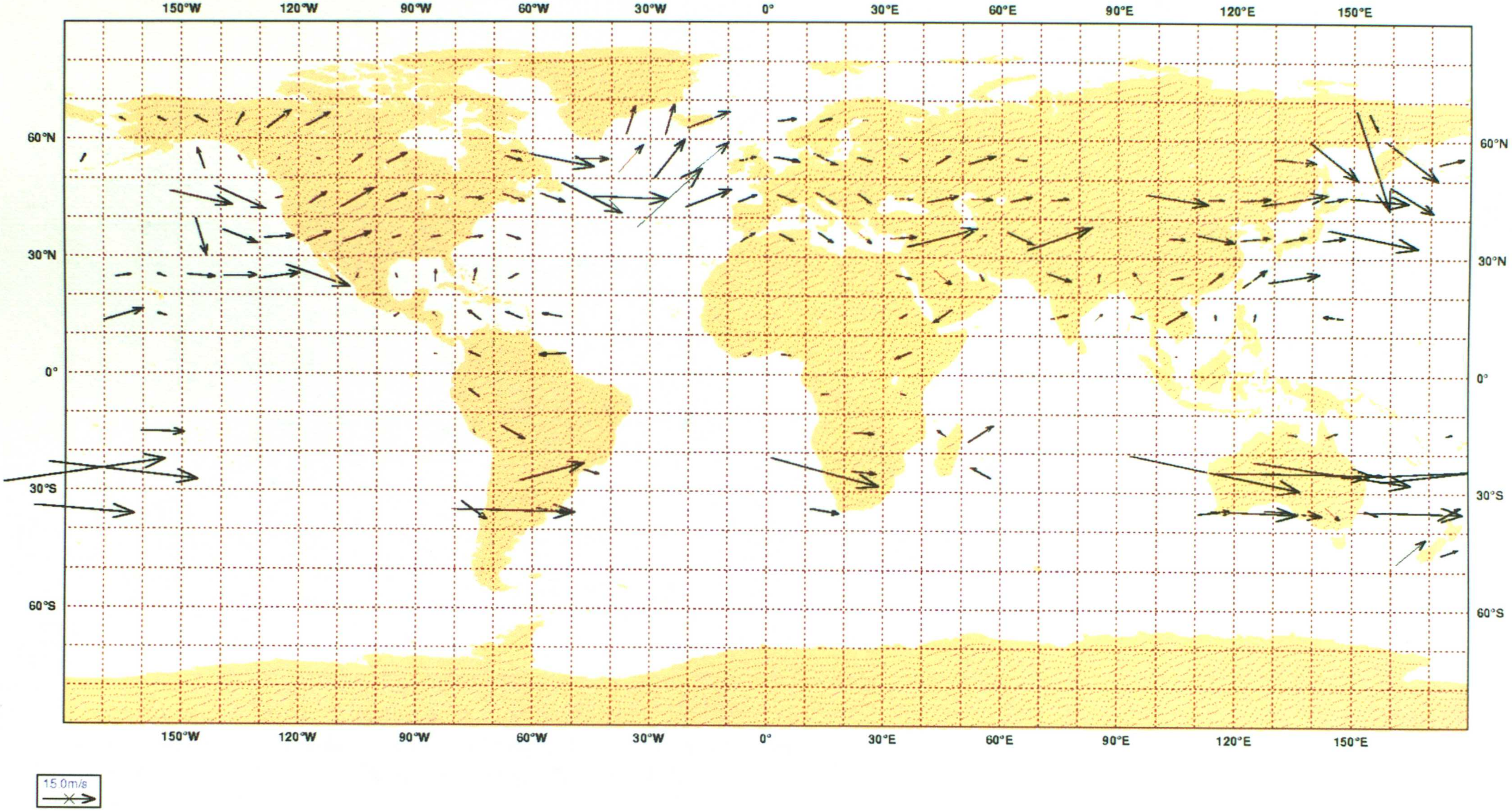

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 5a. AIRCRAFT 300 - 150 hPa mean O-B winds. JUNE 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

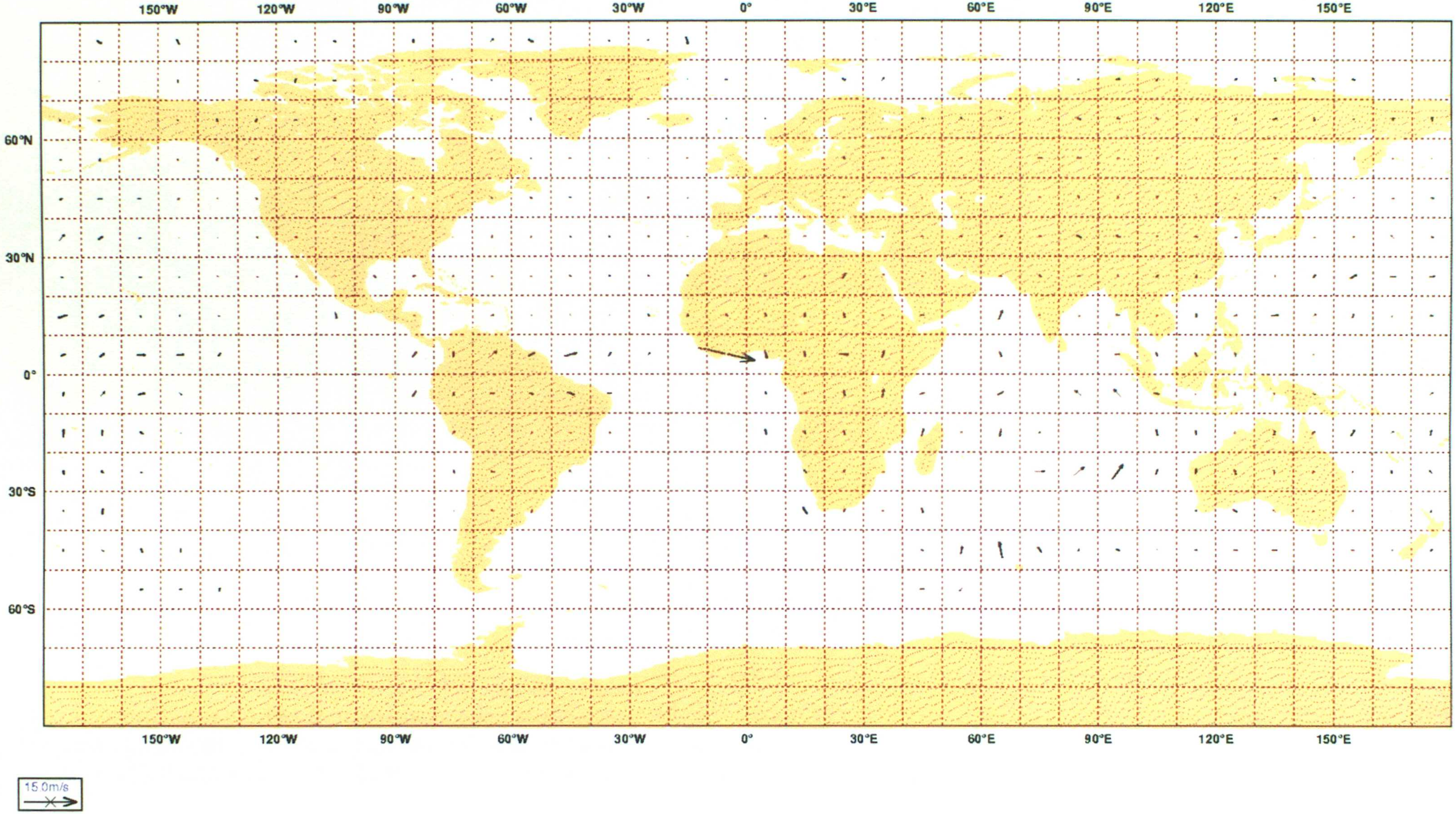

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 5b. AIRCRAFT 1000 - 301 hPa mean O-B winds. JUNE 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Arrows are plotted where greater than 30 obs are present

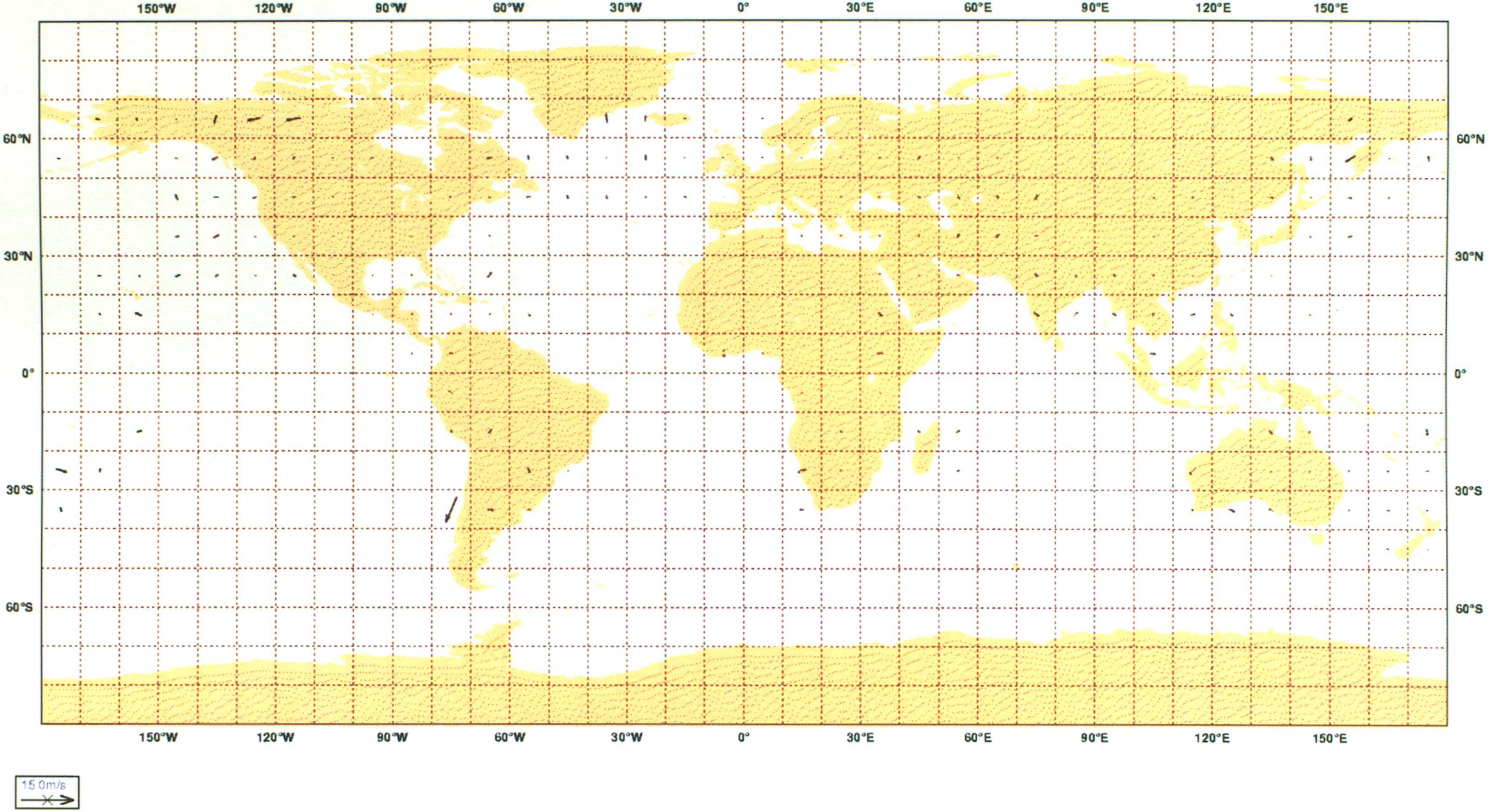

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 6a. AIRCRAFT 300 - 150 hPa mean O-B speeds (ms-1). JUNE 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

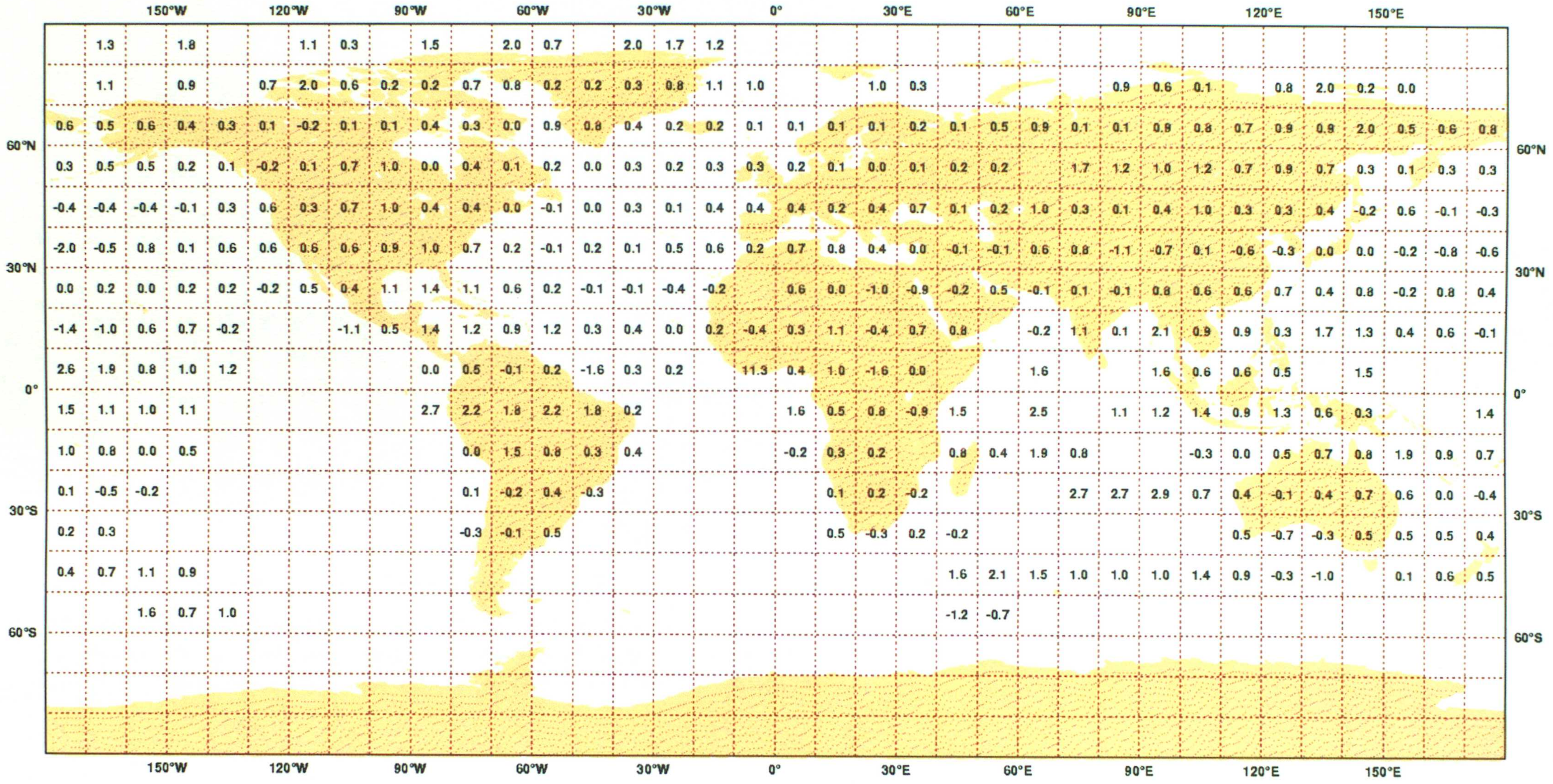

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
1.3 1.8 1.1 0.3 1.5 2.0 0.7 2.0 1.7 1.2
1.1 0.9 0.7 2.0 0.6 0.2 0.2 0.7 0.8 0.2 0.2 0.3 0.8 1.1 1.0 1.0 0.3 0.9 0.6 0.1 0.8 2.0 0.2 0.0
0.6 0.5 0.6 0.4 0.3 0.1 -0.2 0.1 0.1 0.4 0.3 0.0 0.9 0.8 0.4 0.2 0.2 0.1 0.1 0.1 0.1 0.2 0.1 0.5 0.9 0.1 0.1 0.9 0.8 0.7 0.9 0.9 2.0 0.5 0.6 0.8
0.3 0.5 0.5 0.2 0.1 -0.2 0.1 0.7 1.0 0.0 0.4 0.1 0.2 0.0 0.3 0.2 0.3 0.3 0.2 0.1 0.0 0.1 0.2 0.2 1.7 1.2 1.0 1.2 0.7 0.9 0.7 0.3 0.1 0.3 0.3
-0.4 -0.4 -0.4 -0.1 0.3 0.6 0.3 0.7 1.0 0.4 0.4 0.0 -0.1 0.0 0.3 0.1 0.4 0.4 0.4 0.2 0.4 0.7 0.1 0.2 1.0 0.3 0.1 0.4 1.0 0.3 0.3 0.4 -0.2 0.6 -0.1 -0.3
-2.0 -0.5 0.8 0.1 0.6 0.6 0.6 0.6 0.9 1.0 0.7 0.2 -0.1 0.2 0.1 0.5 0.6 0.2 0.7 0.8 0.4 0.0 -0.1 -0.1 0.6 0.8 -1.1 -0.7 0.1 -0.6 -0.3 0.0 0.0 -0.2 -0.8 -0.6
0.0 0.2 0.0 0.2 0.2 -0.2 0.5 0.4 1.1 1.4 1.1 0.6 0.2 -0.1 -0.1 -0.4 -0.2 0.6 0.0 -1.0 -0.9 -0.2 0.5 -0.1 0.1 -0.1 0.8 0.6 0.6 0.7 0.4 0.8 -0.2 0.8 0.4
-1.4 -1.0 0.6 0.7 -0.2 -1.1 0.5 1.4 1.2 0.9 1.2 0.3 0.4 0.0 0.2 -0.4 0.3 1.1 -0.4 0.7 0.8 -0.2 1.1 0.1 2.1 0.9 0.9 0.3 1.7 1.3 0.4 0.6 -0.1
2.6 1.9 0.8 1.0 1.2 0.0 0.5 -0.1 0.2 -1.6 0.3 0.2 11.3 0.4 1.0 -1.6 0.0 1.6 1.6 0.6 0.6 0.5 1.5
1.5 1.1 1.0 1.1 2.7 2.2 1.8 2.2 1.8 0.2 1.6 0.5 0.8 -0.9 1.5 2.5 1.1 1.2 1.4 0.9 1.3 0.6 0.3 1.4
1.0 0.8 0.0 0.5 0.0 1.5 0.8 0.3 0.4 -0.2 0.3 0.2 0.8 0.4 1.9 0.8 -0.3 0.0 0.5 0.7 0.8 1.9 0.9 0.7
0.1 -0.5 -0.2 0.1 -0.2 0.4 -0.3 0.1 0.2 -0.2 2.7 2.7 2.9 0.7 0.4 -0.1 0.4 0.7 0.6 0.0 -0.4
0.2 0.3 -0.3 -0.1 0.5 0.5 -0.3 0.2 -0.2 0.5 -0.7 -0.3 0.5 0.5 0.5 0.4
0.4 0.7 1.1 0.9 1.6 2.1 1.5 1.0 1.0 1.0 1.4 0.9 -0.3 -1.0 0.1 0.6 0.5
1.6 0.7 1.0 -1.2 -0.7

Figure 6b. AIRCRAFT 1000 - 301 hPa mean O-B speeds (ms-1). JUNE 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

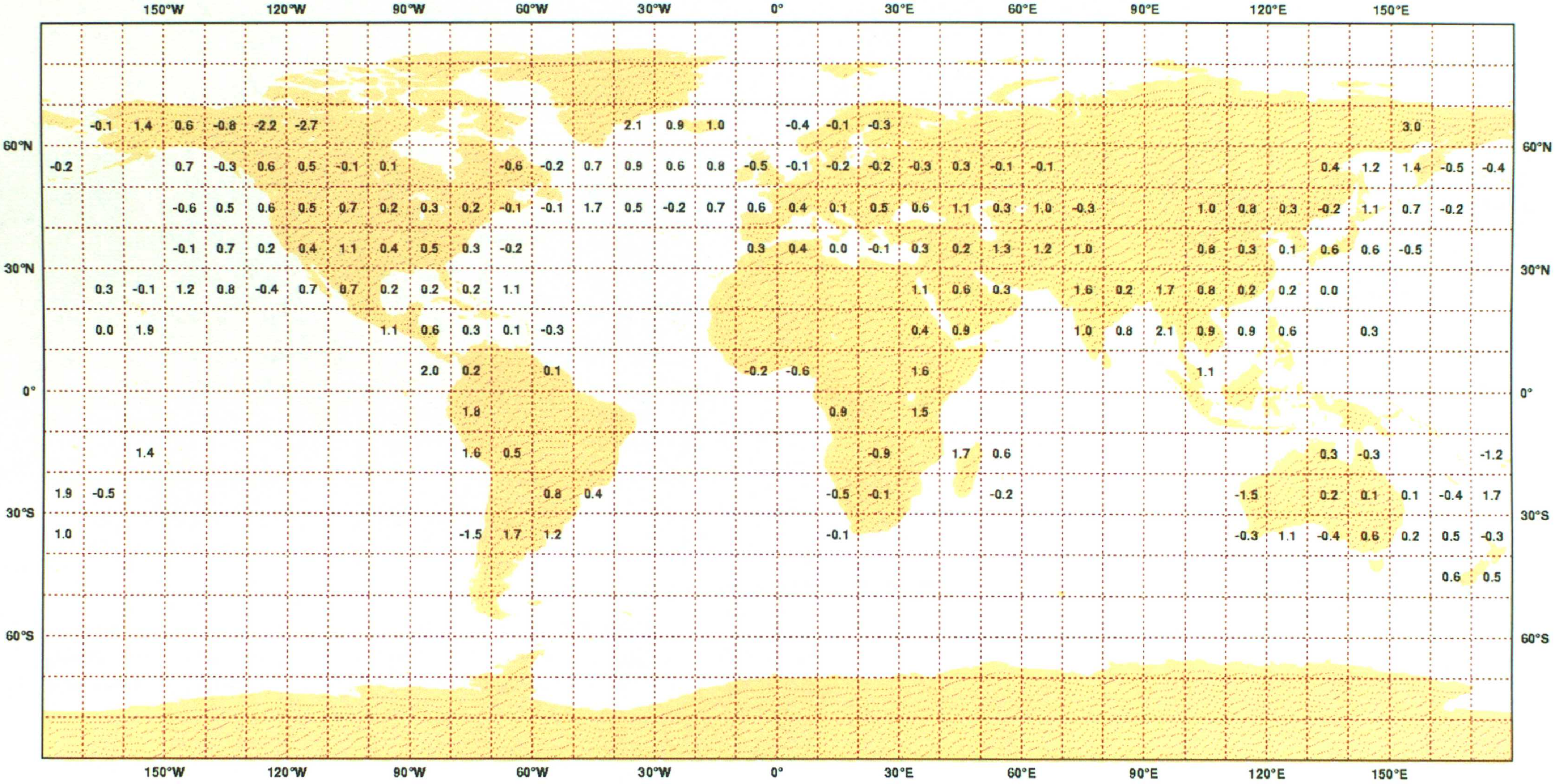

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
-0.1
1.4
0.6
-0.8
-2.2
-2.7
2.1
0.9
1.0
-0.4
-0.1
-0.3
3.0
-0.2
0.7
-0.3
0.6
0.5
-0.1
0.1
-0.6
-0.2
0.7
0.9
0.6
0.8
-0.5
-0.1
-0.2
-0.2
-0.3
0.3
-0.1
-0.1
0.4
1.2
1.4
-0.5
-0.4
-0.6
0.5
0.6
0.5
0.7
0.2
0.3
0.2
-0.1
-0.1
1.7
0.5
-0.2
0.7
0.6
0.4
0.1
0.5
0.6
1.1
0.3
1.0
-0.3
1.0
0.8
0.3
-0.2
1.1
0.7
-0.2
-0.1
0.7
0.2
0.4
1.1
0.4
0.5
0.3
-0.2
0.3
0.4
0.0
-0.1
0.3
0.2
1.3
1.2
1.0
0.8
0.3
0.1
0.6
0.6
-0.5
0.3
-0.1
1.2
0.8
-0.4
0.7
0.7
0.2
0.2
0.2
1.1
1.1
0.6
0.3
1.6
0.2
1.7
0.8
0.2
0.2
0.0
0.0
1.9
1.1
0.6
0.3
0.1
-0.3
0.4
0.9
1.0
0.8
2.1
0.9
0.9
0.6
0.3
2.0
0.2
0.1
-0.2
-0.6
1.6
1.1
1.8
0.9
1.5
1.4
1.6
0.5
-0.9
1.7
0.6
0.3
-0.3
-1.2
1.9
-0.5
0.8
0.4
-0.5
-0.1
-0.2
-1.5
0.2
0.1
0.1
-0.4
1.7
1.0
-1.5
1.7
1.2
-0.1
-0.3
1.1
-0.4
0.6
0.2
0.5
-0.3
0.6
0.5
150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E

Figure 7a. AIRCRAFT 300 - 150 hPa RMS O-B vector (ms-1). JUNE 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

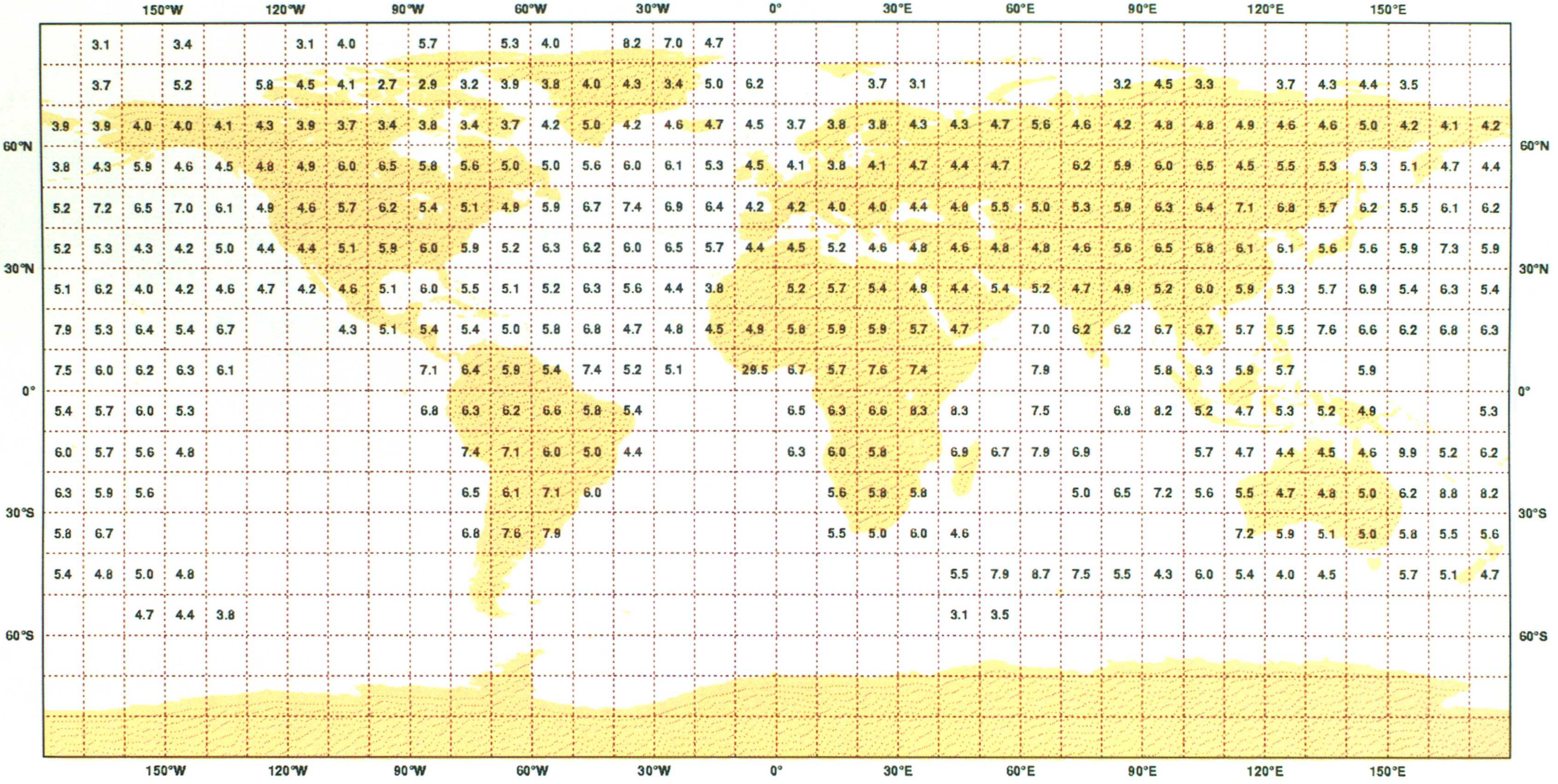

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
3.1 3.4 3.1 4.0 5.7 5.3 4.0 8.2 7.0 4.7
3.7 5.2 5.8 4.5 4.1 2.7 2.9 3.2 3.9 3.8 4.0 4.3 3.4 5.0 6.2 3.7 3.1 3.2 4.5 3.3 3.7 4.3 4.4 3.5
3.9 3.9 4.0 4.0 4.1 4.3 3.9 3.7 3.4 3.8 3.4 3.7 4.2 5.0 4.2 4.6 4.7 4.5 3.7 3.8 3.8 4.3 4.3 4.7 5.6 4.6 4.2 4.8 4.8 4.9 4.6 4.6 5.0 4.2 4.1 4.2
3.8 4.3 5.9 4.6 4.5 4.8 4.9 6.0 6.5 5.8 5.6 5.0 5.0 5.6 6.0 6.1 5.3 4.5 4.1 3.8 4.1 4.7 4.4 4.7 6.2 5.9 6.0 6.5 4.5 5.5 5.3 5.3 5.1 4.7 4.4
5.2 7.2 6.5 7.0 6.1 4.9 4.6 5.7 6.2 5.4 5.1 4.9 5.9 6.7 7.4 6.9 6.4 4.2 4.2 4.0 4.0 4.4 4.8 5.5 5.0 5.3 5.9 6.3 6.4 7.1 6.8 5.7 6.2 5.5 6.1 6.2
5.2 5.3 4.3 4.2 5.0 4.4 4.4 5.1 5.9 6.0 5.9 5.2 6.3 6.2 6.0 6.5 5.7 4.4 4.5 5.2 4.6 4.8 4.6 4.8 4.8 4.6 5.6 6.5 6.8 6.1 6.1 5.6 5.6 5.9 7.3 5.9
5.1 6.2 4.0 4.2 4.6 4.7 4.2 4.6 5.1 6.0 5.5 5.1 5.2 6.3 5.6 4.4 3.8 5.2 5.7 5.4 4.9 4.4 5.4 5.2 4.7 4.9 5.2 6.0 5.9 5.3 5.7 6.9 5.4 6.3 5.4
7.9 5.3 6.4 5.4 6.7 4.3 5.1 5.4 5.4 5.0 5.8 6.8 4.7 4.8 4.5 4.9 5.8 5.9 5.9 5.7 4.7 7.0 6.2 6.2 6.7 6.7 5.7 5.5 7.6 6.6 6.2 6.8 6.3
7.5 6.0 6.2 6.3 6.1 7.1 6.4 5.9 5.4 7.4 5.2 5.1 29.5 6.7 5.7 7.6 7.4 7.9 5.8 6.3 5.9 5.7 5.9
5.4 5.7 6.0 5.3 6.8 6.3 6.2 6.6 5.8 5.4 6.5 6.3 6.6 8.3 8.3 7.5 6.8 8.2 5.2 4.7 5.3 5.2 4.9 5.3
6.0 5.7 5.6 4.8 7.4 7.1 6.0 5.0 4.4 6.3 6.0 5.8 6.9 6.7 7.9 6.9 5.7 4.7 4.4 4.5 4.6 9.9 5.2 6.2
6.3 5.9 5.6 6.5 6.1 7.1 6.0 5.6 5.8 5.8 5.0 6.5 7.2 5.6 5.5 4.7 4.8 5.0 6.2 8.8 8.2
5.8 6.7 6.8 7.6 7.9 5.5 5.0 6.0 4.6 7.2 5.9 5.1 5.0 5.8 5.5 5.6
5.4 4.8 5.0 4.8 5.5 7.9 8.7 7.5 5.5 4.3 6.0 5.4 4.0 4.5 5.7 5.1 4.7
4.7 4.4 3.8 3.1 3.5

Figure 7b. AIRCRAFT 1000 - 301 hPa RMS O-B vector (ms-1). JUNE 2005
Observations with O-B vector difference greater than 60 ms-1 excluded
Values are printed where greater than 30 obs are present

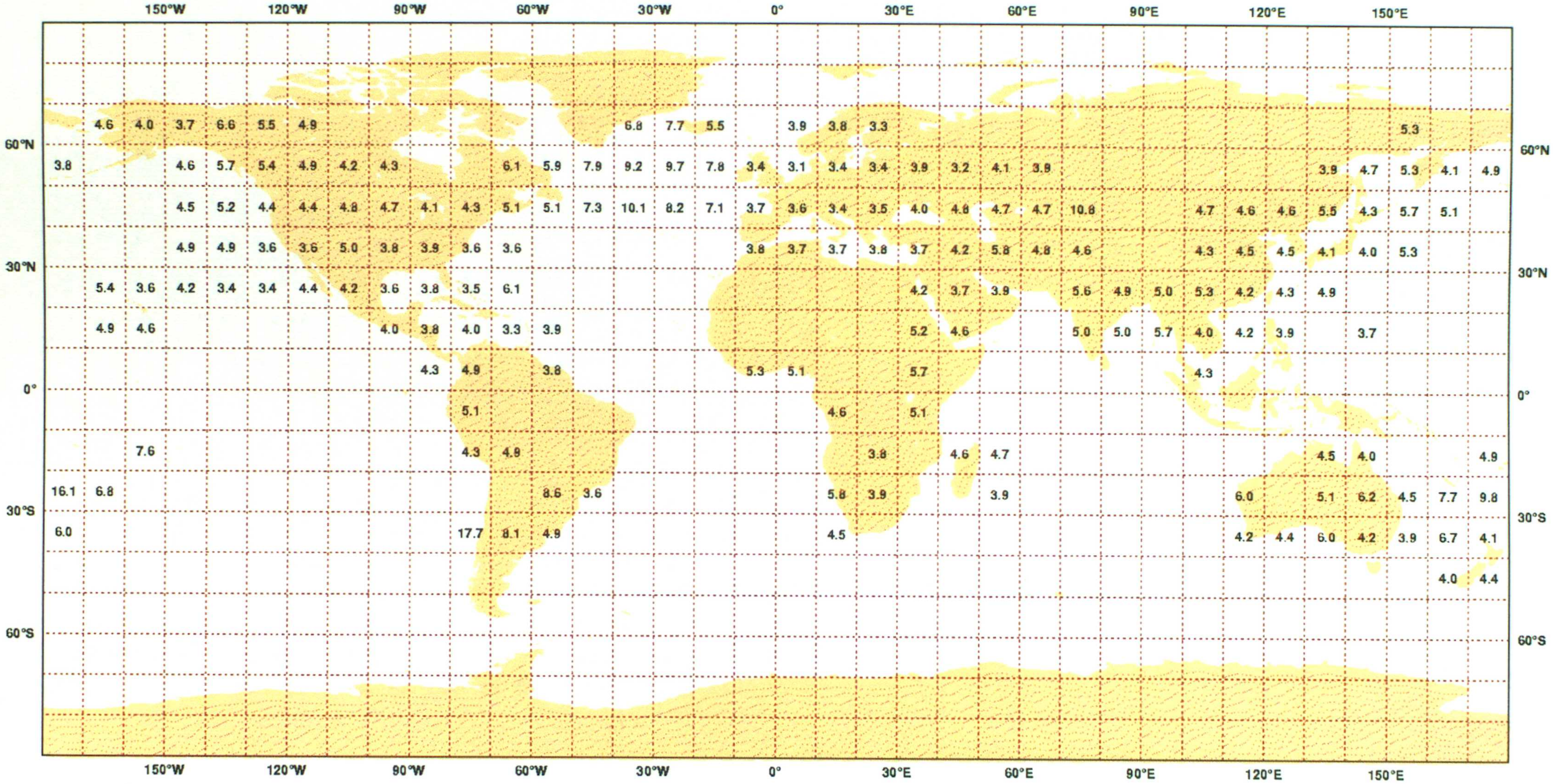

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
4.6 4.0 3.7 6.6 5.5 4.9 6.8 7.7 5.5 3.9 3.8 3.3 5.3
3.8 4.6 5.7 5.4 4.9 4.2 4.3 6.1 5.9 7.9 9.2 9.7 7.8 3.4 3.1 3.4 3.4 3.9 3.2 4.1 3.9 3.9 4.7 5.3 4.1 4.9
4.5 5.2 4.4 4.4 4.8 4.7 4.1 4.3 5.1 5.1 7.3 10.1 8.2 7.1 3.7 3.6 3.4 3.5 4.0 4.8 4.7 4.7 10.8 4.7 4.6 4.6 5.5 4.3 5.7 5.1
4.9 4.9 3.6 3.6 5.0 3.8 3.9 3.6 3.6 3.8 3.7 3.7 3.8 3.7 4.2 5.8 4.8 4.6 4.3 4.5 4.5 4.1 4.0 5.3
5.4 3.6 4.2 3.4 3.4 4.4 4.2 3.6 3.8 3.5 6.1 4.2 3.7 3.9 5.6 4.9 5.0 5.3 4.2 4.3 4.9
4.9 4.6 4.0 3.8 4.0 3.3 3.9 5.2 4.6 5.0 5.0 5.7 4.0 4.2 3.9 3.7
4.3 4.9 3.8 5.3 5.1 5.7 4.3
5.1 4.6 5.1
7.6 4.3 4.9 3.8 4.6 4.7 4.5 4.0 4.9
16.1 6.8 8.6 3.6 5.8 3.9 3.9 6.0 5.1 6.2 4.5 7.7 9.8
6.0 17.7 8.1 4.9 4.5 4.2 4.4 6.0 4.2 3.9 6.7 4.1
4.0 4.4

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: June 2005

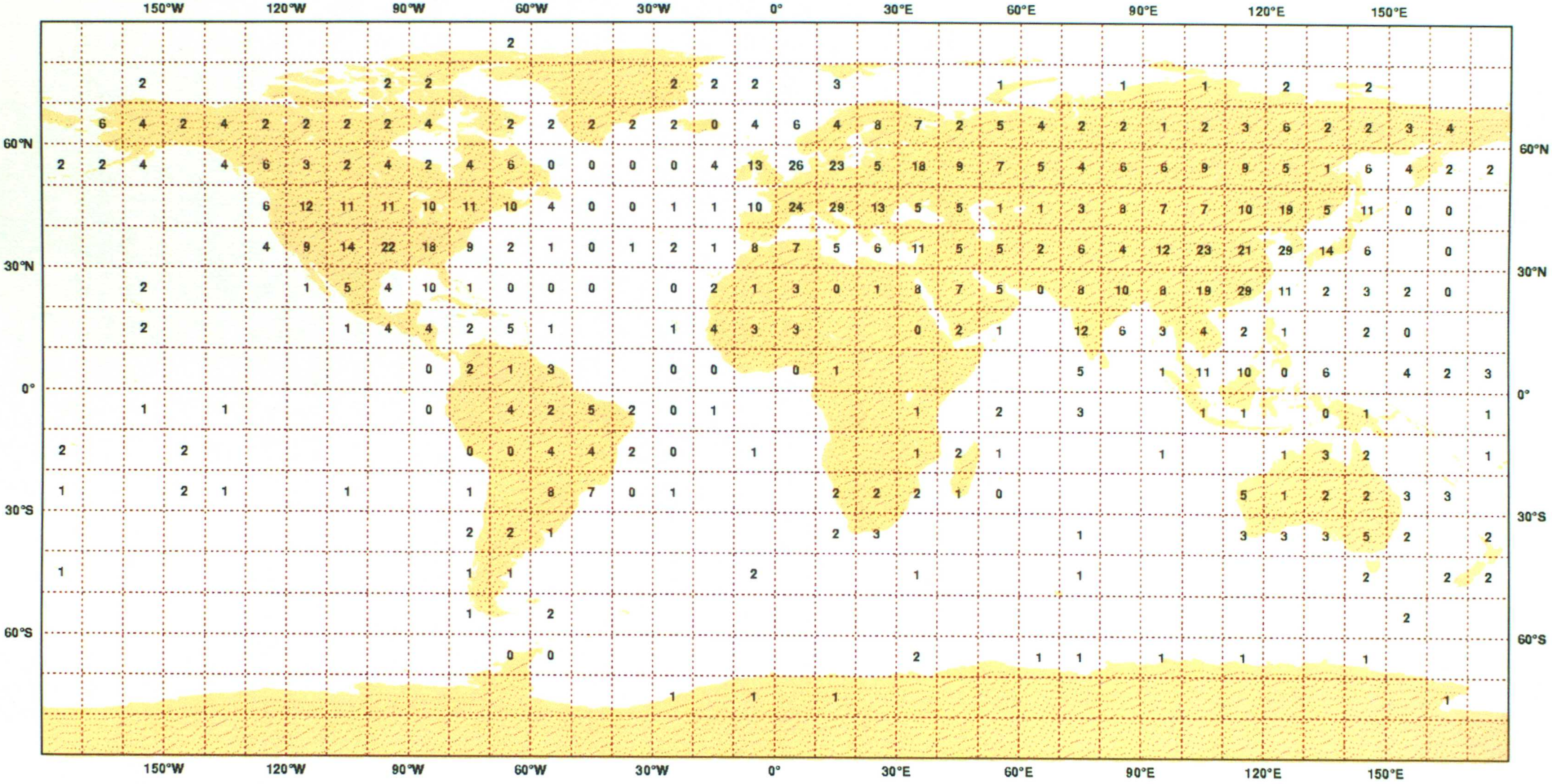
Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 30.0 hPa
Element monitored		:GEOPOTENTIAL HEIGHT IN metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.1	
SELECTION CRITERIA	: ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.	

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
28275	12	Z	200	58/ 68	20	0	30.2	99.7	104.2	7
30715	00	Z	100	52/ 104	2	0	59.0	100.0	116.1	4
33041	00	Z	1000	52/ 31	12	1	25.3	-28.1	37.8	4
42101	00	Z	150	30/ 76	28	0	79.7	-105.6	132.3	8
42182	00	Z	100	29/ 77	19	1	78.8	-195.1	210.4	8
42182	12	Z	150	29/ 77	29	1	103.2	-64.6	121.8	11
42314	00	Z	100	27/ 95	16	0	104.2	-113.5	154.1	5
42339	00	Z	200	26/ 73	19	0	48.6	-132.2	140.8	8
42339	12	Z	200	26/ 73	19	0	105.9	-39.8	113.2	8
42361	00	Z	200	26/ 78	14	3	71.2	-108.4	129.7	8
42369	00	Z	250	27/ 81	9	1	86.0	75.4	114.4	4
42369	12	Z	250	27/ 81	6	4	153.5	53.7	162.6	5
42379	00	Z	200	27/ 83	20	0	81.5	-108.5	135.7	9
42397	00	Z	200	27/ 88	13	0	60.1	-105.1	121.1	4
42410	00	Z	250	26/ 92	16	0	91.5	-20.5	93.8	5
42410	12	Z	150	26/ 92	15	1	93.0	-139.6	167.7	8
42492	12	Z	1000	26/ 85	7	23	5.4	-90.3	90.4	5
42647	00	Z	1000	23/ 73	17	0	14.7	-46.9	49.2	8
42667	00	Z	100	23/ 77	13	0	135.6	-12.9	136.2	5
42667	12	Z	200	23/ 77	11	1	82.2	-101.5	130.6	4
42701	00	Z	30	23/ 85	15	3	206.6	191.5	281.7	4
42724	00	Z	100	24/ 91	17	1	105.5	-117.1	157.6	7
42724	12	Z	100	24/ 91	15	3	92.0	-201.5	221.6	7
42809	00	Z	30	23/ 88	10	0	145.1	209.7	255.0	12
42809	12	Z	1000	23/ 88	28	1	19.5	-54.5	57.9	10
42867	00	Z	200	21/ 79	21	0	52.0	-126.0	136.2	7
42867	12	Z	100	21/ 79	13	1	93.8	-152.5	179.0	8
42874	00	Z	150	21/ 82	10	1	101.7	-100.5	143.0	6
42874	12	Z	200	21/ 82	9	1	50.7	-91.0	104.2	5
42971	00	Z	1000	20/ 86	21	5	12.4	-75.6	76.6	5
42971	12	Z	1000	20/ 86	16	10	8.3	-85.9	86.3	6
43003	00	Z	1000	19/ 73	5	22	0.9	-99.0	99.0	11
43003	12	Z	200	19/ 73	20	2	83.4	-103.3	132.7	8
43041	00	Z	200	19/ 82	13	1	86.6	-62.2	106.6	5
43128	00	Z	100	17/ 78	11	1	58.3	-170.0	179.7	5
43128	12	Z	150	17/ 78	13	0	121.1	-23.2	123.3	5
43150	00	Z	500	18/ 83	25	1	36.8	-56.6	67.5	9
43150	12	Z	500	18/ 83	25	0	31.4	-63.8	71.1	9
43185	00	Z	200	16/ 81	26	0	68.1	-86.3	110.0	7
43192	00	Z	300	15/ 74	13	0	57.4	-55.4	79.7	4
43192	12	Z	250	15/ 74	13	0	71.3	-64.3	96.0	4
43279	00	Z	1000	13/ 80	24	0	12.5	-58.1	59.4	5
43285	00	Z	300	13/ 75	26	0	49.3	-69.1	84.9	6
43295	00	Z	200	13/ 78	29	0	55.3	-89.8	105.5	6
43333	00	Z	150	12/ 93	17	1	78.3	-121.6	144.6	7
43333	12	Z	150	12/ 93	13	2	89.3	-111.8	143.1	6
43346	12	Z	850	11/ 80	23	1	24.8	36.2	43.8	9
43353	00	Z	1000	10/ 76	7	13	4.7	-86.1	86.3	5
43353	12	Z	1000	10/ 76	9	18	5.8	-90.3	90.5	5
43369	00	Z	150	8/ 73	11	3	93.2	-121.5	153.1	7
43369	12	Z	250	8/ 73	19	0	79.5	-16.9	81.3	7
43371	00	Z	150	8/ 77	18	4	72.5	-183.2	197.0	10
43371	12	Z	200	8/ 77	23	0	68.0	-76.3	102.2	7
60715	12	Z	700	37/ 10	12	0	32.9	-20.1	38.6	4
96163	00	Z	1000	-1/ 100	3	7	3.7	-95.7	95.7	8
96935	00	Z	1000	-7/ 113	10	1	8.9	-84.6	85.1	11
97560	00	Z	200	-1/ 136	11	0	49.7	-62.2	79.6	4

Figure 8. TEMP 500 hPa geopotential mean daily count. JUNE 2005
All hours
Global average number of observations in 24 hours = 1224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120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
2
2 2 2 2 2 2 3 1 1 1 2 2
6 4 2 4 2 2 2 2 4 2 2 2 2 2 0 4 6 4 8 7 2 5 4 2 2 1 2 3 6 2 2 3 4
2 2 4 4 6 3 2 4 2 4 6 0 0 0 0 4 13 26 23 5 18 9 7 5 4 6 6 9 9 5 1 6 4 2 2
6 12 11 11 10 11 10 4 0 0 1 1 10 24 29 13 5 5 1 1 3 8 7 7 10 19 5 11 0 0
4 9 14 22 18 9 2 1 0 1 2 1 8 7 5 6 11 5 5 2 6 4 12 23 21 29 14 6 0
2 1 5 4 10 1 0 0 0 0 2 1 3 0 1 8 7 5 0 8 10 8 19 29 11 2 3 2 0
2 1 4 4 2 5 1 1 4 3 3 0 2 1 12 6 3 4 2 1 2 0
0 2 1 3 0 0 0 1 5 1 11 10 0 6 4 2 3
1 1 0 4 2 5 2 0 1 1 2 3 1 1 0 1 1
2 2 0 0 4 4 2 0 1 1 2 1 1 1 3 2 1
1 2 1 1 1 8 7 0 1 2 2 2 1 0 5 1 2 2 3 3
2 2 1 2 3 1 3 3 3 5 2 2
1 1 1 2 1 1 2 2 2
1 2 2
0 0 2 1 1 1 1 1
1 1 1 1

TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: June 2005

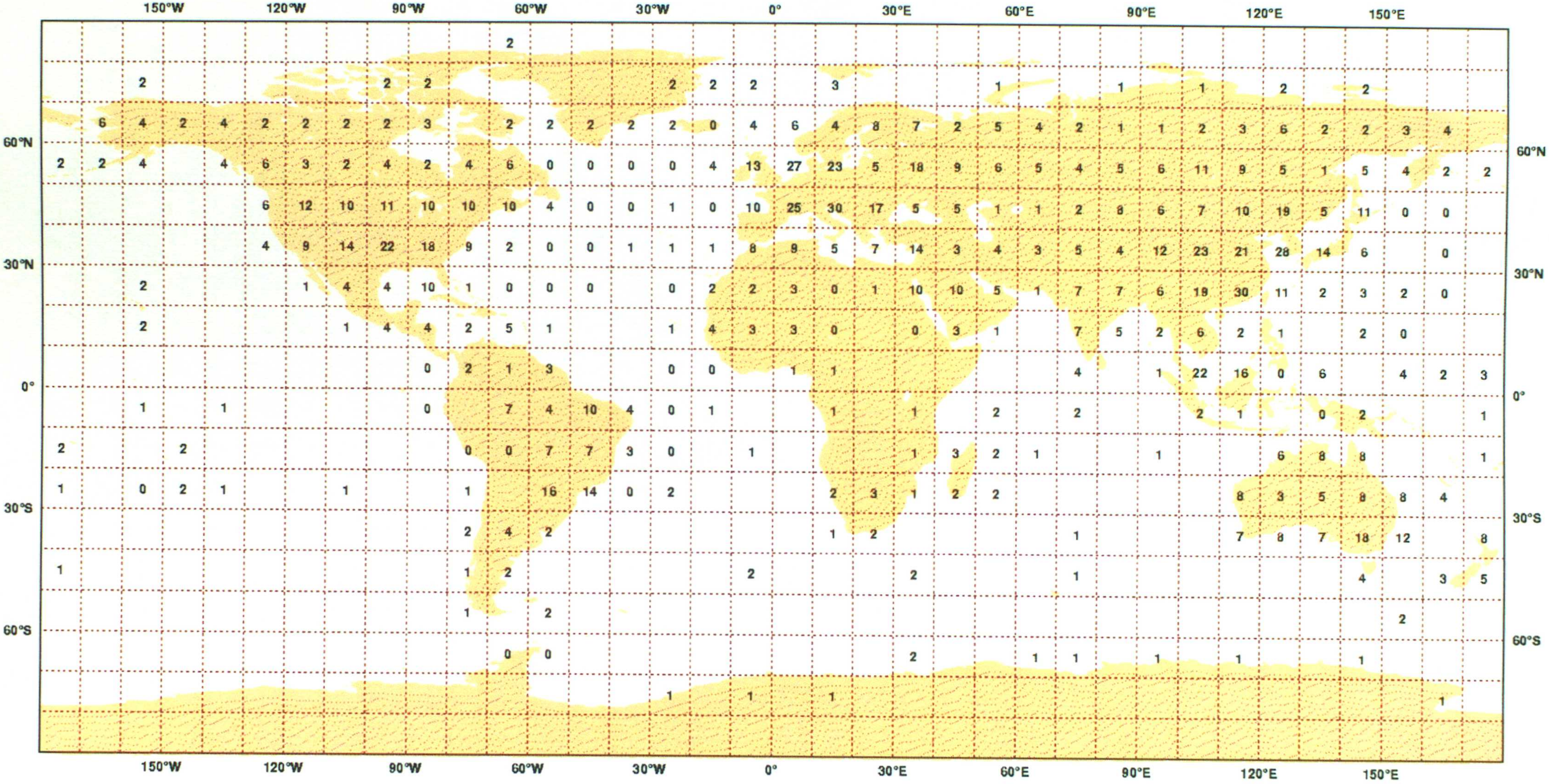
Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from UKMO global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 100.0 hPa
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period excluding those with gross errors.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.2	
SELECTION CRITERIA	: ≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.	

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
42369	00	V	700	27/ 81	14	1	28	5.1	-7.1	16.6	1
42369	12	V	400	27/ 81	11	0	18	8.9	-6.0	16.6	2
42410	00	V	150	26/ 92	12	0	100	2.9	0.1	16.4	1
43346	00	V	150	11/ 80	13	0	7	-0.4	4.6	22.8	2
43369	00	V	150	8/ 73	12	0	100	1.7	3.2	15.2	1
43369	12	V	200	8/ 73	16	0	100	4.3	3.2	18.4	2
43371	00	V	100	8/ 77	14	0	64	15.5	4.6	21.5	1
43371	12	V	100	8/ 77	16	0	25	12.0	-0.8	17.3	1
43599	12	V	100	-1/ 73	27	0	25	15.3	2.0	19.3	2
48407	00	V	100	15/ 105	24	0	100	7.2	2.3	16.6	1
48407	12	V	100	15/ 105	21	0	100	6.5	9.7	15.3	1
60590	12	V	150	31/ 3	14	0	100	-22.8	-1.5	27.7	5
60620	12	V	200	28/ 0	10	0	100	-16.5	-4.5	23.3	2
62337	00	V	200	31/ 34	29	0	100	-13.0	3.0	17.0	3
68174	12	V	300	-24/ 29	10	0	100	-2.8	-1.6	15.3	1
68263	12	V	400	-26/ 28	16	1	75	-13.5	1.2	20.0	2
68442	12	V	250	-29/ 26	15	0	100	-11.0	-1.9	20.3	2
68461	12	V	300	-28/ 28	10	1	100	3.4	0.9	19.2	3
71823	12	V	250	54/ -74	29	0	10	-4.1	1.4	18.1	4
71909	00	V	250	64/ -69	23	1	4	1.1	2.8	17.0	2
83928	00	V	250	-30/ -57	24	0	8	-1.6	-2.1	16.3	1
89009	00	V	300	-90/ 0	29	0	100	-0.6	-14.4	25.0	5

Figure 9. TEMP/PILOT 300 hPa wind mean daily count. JUNE 2005
All hours
Global average number of observations in 24 hours = 1367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60°N 30°N 0° 30°S 60°S
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6 4 2 4 2 2 2 2 3 2 2 2 2 2 0 4 6 4 8 7 2 5 4 2 1 1 2 3 6 2 2 3 4
2 2 4 4 6 3 2 4 2 4 6 0 0 0 0 4 13 27 23 5 18 9 6 5 4 5 6 11 9 5 1 5 4 2 2
6 12 10 11 10 10 10 4 0 0 1 0 10 25 30 17 5 5 1 1 2 8 6 7 10 19 5 11 0 0
4 9 14 22 18 9 2 0 0 1 1 1 8 9 5 7 14 3 4 3 5 4 12 23 21 28 14 6 0
2 1 4 4 10 1 0 0 0 0 2 2 3 0 1 10 10 5 1 7 7 6 19 30 11 2 3 2 0
2 1 4 4 2 5 1 1 4 3 3 0 0 3 1 7 5 2 6 2 1 2 0
0 2 1 3 0 0 1 1 4 1 22 16 0 6 4 2 3
1 1 0 7 4 10 4 0 1 1 1 2 2 2 1 0 2 1
2 2 0 0 7 7 3 0 1 1 3 2 1 1 6 8 8 1
1 0 2 1 1 1 16 14 0 2 2 3 1 2 2 8 3 5 8 8 4
2 4 2 1 2 1 7 8 7 18 12 8
1 1 2 2 2 1 4 3 5
1 2 2
0 0 2 1 1 1 1 1
1 1 1 1

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: EXETER
MONTH: June 2005

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from UKMO global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 500.0 - 150.0 hPa

Element monitored :WIND DIRECTION in degrees

Parameters monitored

:NUM OBS :Average number of observations at all levels.

:BIAS :Mean difference of observations from background values from all levels.

:MAX SPREAD :(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels

:SD :SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and
ABSOLUTE BIAS ≥ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
33791	12	DD	48/ 33	25	-15.0	7.7	13.4
42182	00	DD	29/ 77	18	16.6	6.0	14.2
42182	12	DD	29/ 77	24	21.0	3.3	12.8
42369	00	DD	27/ 81	9	12.9	10.0	21.5
42369	12	DD	27/ 81	9	13.9	7.9	18.6
43295	00	DD	13/ 78	15	-10.3	9.9	22.2
48568	12	DD	7/ 101	18	13.8	10.0	21.3
58968	00	DD	25/ 122	23	22.0	4.7	13.6
58968	12	DD	25/ 122	24	22.1	4.2	12.8
62337	00	DD	31/ 34	28	-21.4	1.4	6.9

MONITORING OF SATELLITE WINDS

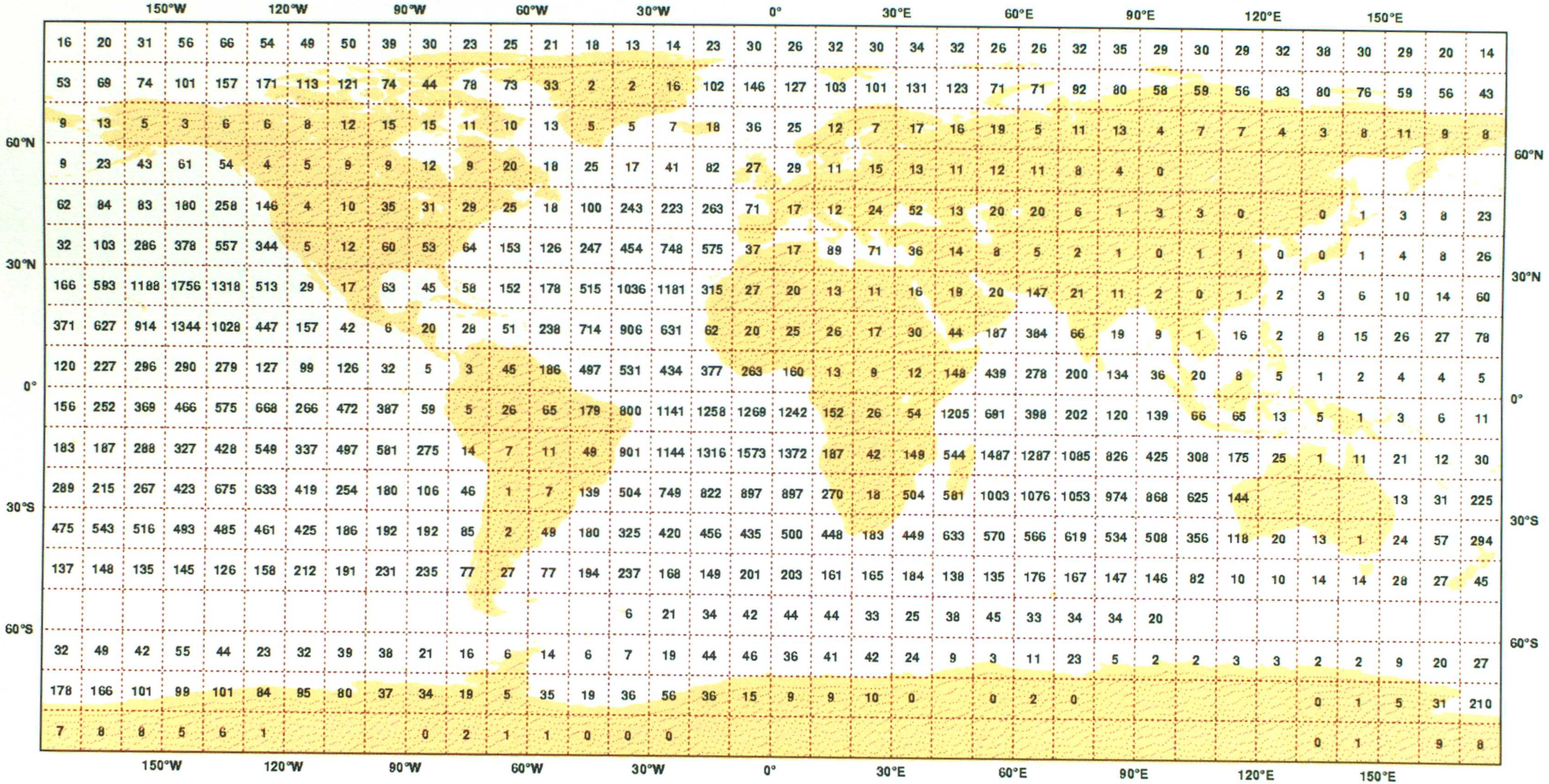
MONITORING CENTRE: EXETER

MONTH: June 2005

Monitoring procedures

Period	:One calendar month.
Data monitored	:Reports from GOES-9, GOES-10, GOES-12, METEOSAT-5, METEOSAT-7
Standard of comparison	:Background field from UKMO global model.
Selection Criteria	:number of observations > 10.
Data Extracted	:Layer 701 - 1000 hPa 401 - 700 hPa 101 - 400 hPa
	:Mean wind
	:Mean observation minus background vector wind differences
	:Mean observation minus background speed differences
	:RMS of observation minus background vector differences

Figure 10. SATOB 701 - 1000 hPa mean daily count. JUNE 2005
Global average number of observations in 24 hours = 98748



16	20	31	56	66	54	49	50	39	30	23	25	21	18	13	14	23	30	26	32	30	34	32	26	26	32	35	29	30	29	32	38	30	29	20	14
53	69	74	101	157	171	113	121	74	44	78	73	33	2	2	16	102	146	127	103	101	131	123	71	71	92	80	58	59	56	83	80	76	59	56	43
9	13	5	3	6	6	8	12	15	15	11	10	13	5	5	7	18	36	25	12	7	17	16	19	5	11	13	4	7	7	4	3	8	11	9	8
9	23	43	61	54	4	5	9	9	12	9	20	18	25	17	41	82	27	29	11	15	13	11	12	11	8	4	0								
62	84	83	180	258	146	4	10	35	31	29	25	18	100	243	223	263	71	17	12	24	52	13	20	20	6	1	3	3	0		0	1	3	8	23
32	103	286	378	557	344	5	12	60	53	64	153	126	247	454	748	575	37	17	89	71	36	14	8	5	2	1	0	1	1	0	0	1	4	8	26
166	583	1188	1756	1318	513	29	17	63	45	58	152	178	515	1036	1181	315	27	20	13	11	16	19	20	147	21	11	2	0	1	2	3	6	10	14	60
371	627	914	1344	1028	447	157	42	6	20	28	51	238	714	906	631	62	20	25	26	17	30	44	187	384	66	19	9	1	16	2	8	15	26	27	78
120	227	296	290	279	127	99	126	32	5	3	45	186	497	531	434	377	263	160	13	9	12	148	439	278	200	134	36	20	8	5	1	2	4	4	5
156	252	369	466	575	668	266	472	387	59	5	26	65	179	800	1141	1258	1269	1242	152	26	54	1205	691	398	202	120	139	66	65	13	5	1	3	6	11
183	187	288	327	428	549	337	497	581	275	14	7	11	49	901	1144	1316	1573	1372	187	42	149	544	1487	1287	1085	826	425	308	175	25	1	11	21	12	30
289	215	267	423	675	633	419	254	180	106	46	1	7	139	504	749	822	897	897	270	18	504	581	1003	1076	1053	974	868	625	144				13	31	225
475	543	516	493	485	461	425	186	192	192	85	2	49	180	325	420	456	435	500	448	183	449	633	570	566	619	534	508	356	118	20	13	1	24	57	294
137	148	135	145	126	158	212	191	231	235	77	27	77	194	237	168	149	201	203	161	165	184	138	135	176	167	147	146	82	10	10	14	14	28	27	45
														6	21	34	42	44	44	33	25	38	45	33	34	34	20								
32	49	42	55	44	23	32	39	38	21	16	6	14	6	7	19	44	46	36	41	42	24	9	3	11	23	5	2	2	3	3	2	2	9	20	27
178	166	101	99	101	84	95	80	37	34	19	5	35	19	36	56	36	15	9	9	10	0		0	2	0						0	1	5	31	210
7	8	8	5	6	1				0	2	1	1	0	0	0																0	1		9	8

Figure 11. SATOB 701 - 1000 hPa vector mean wind. JUNE 2005
All observations
Arrows are plotted where greater than 10 obs are present

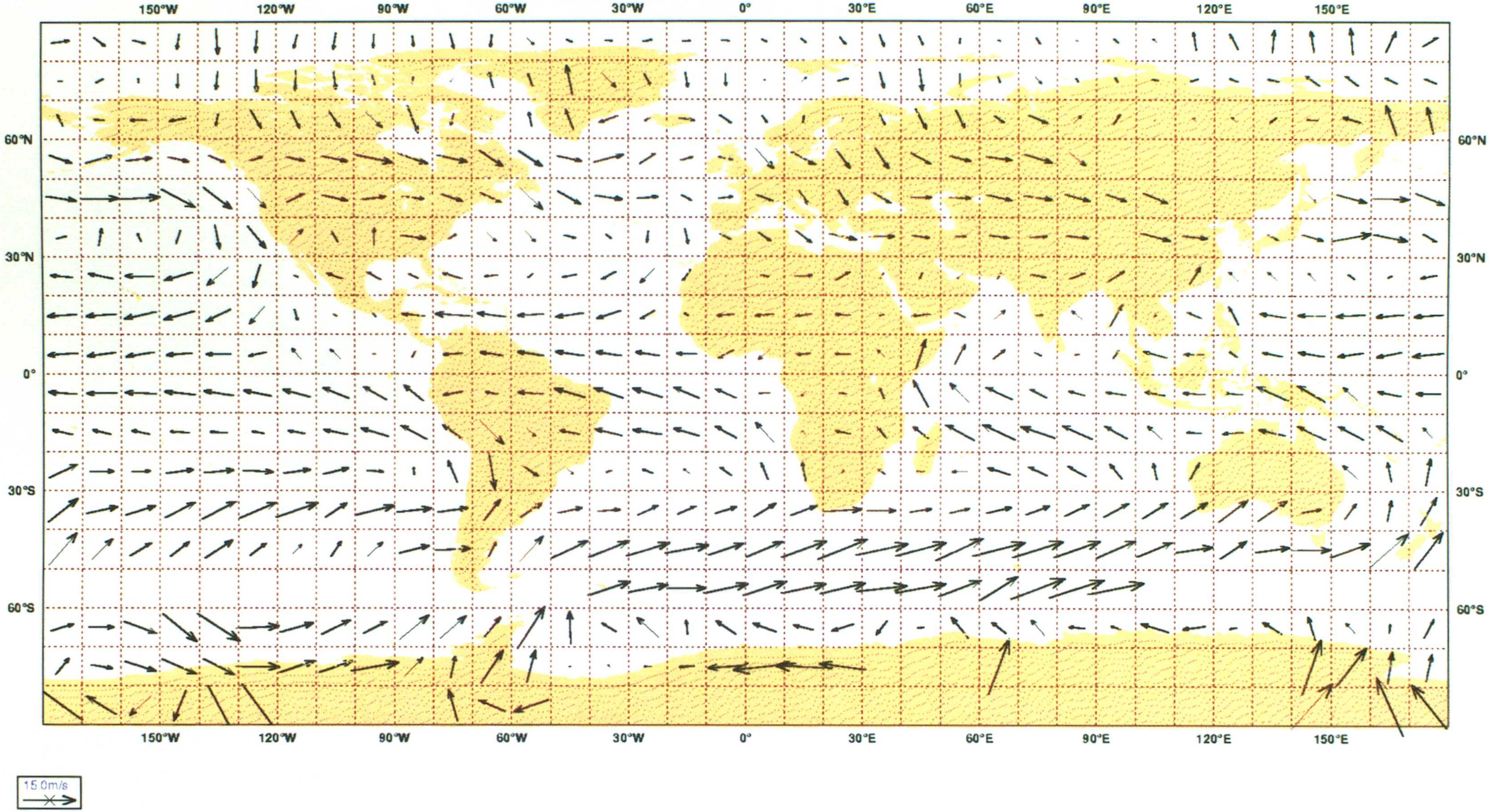

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 12. SATOB 701 - 1000 hPa mean vector wind differences. JUNE 2005
All observations
Arrows are plotted where greater than 10 obs are present

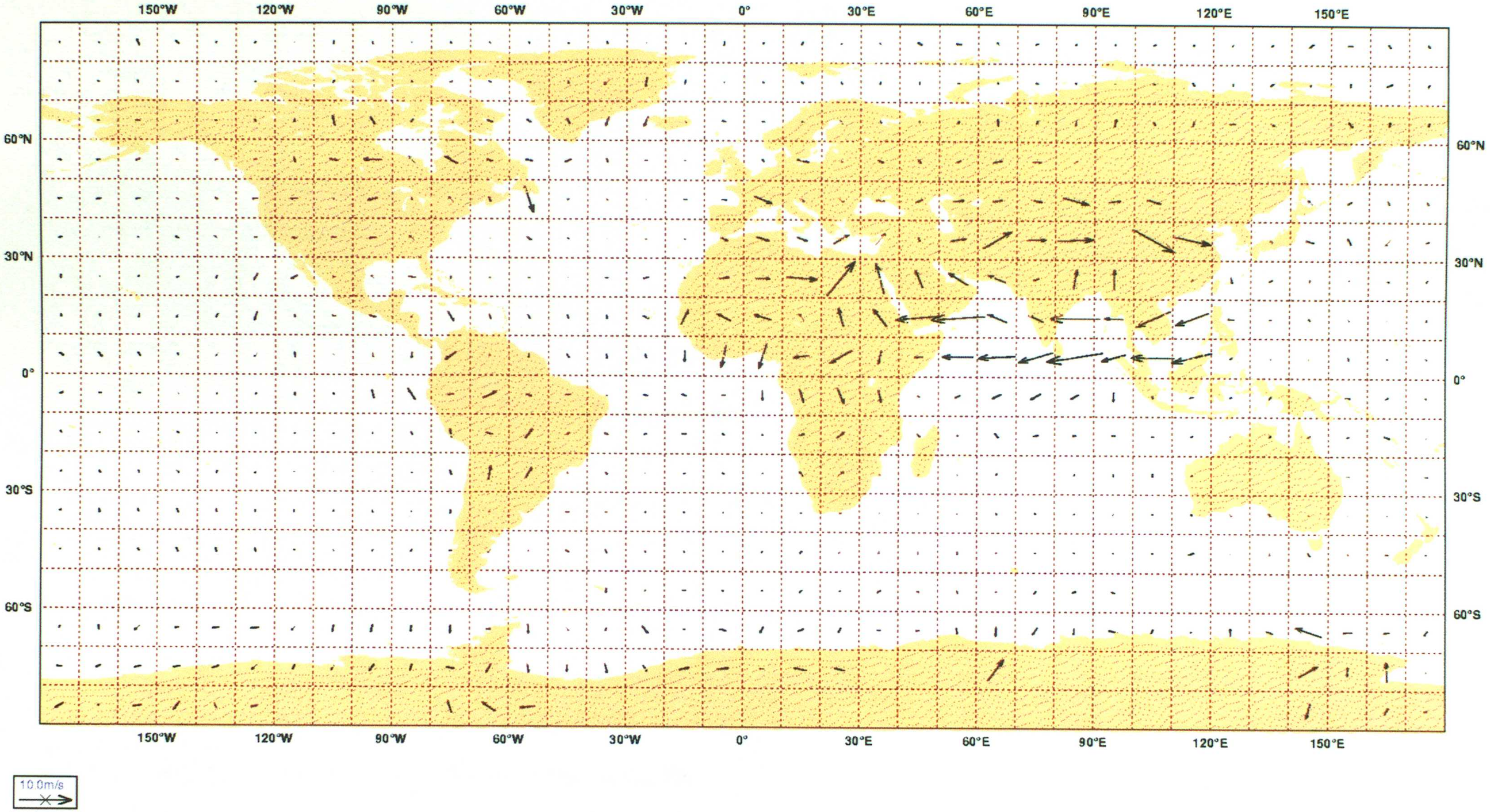
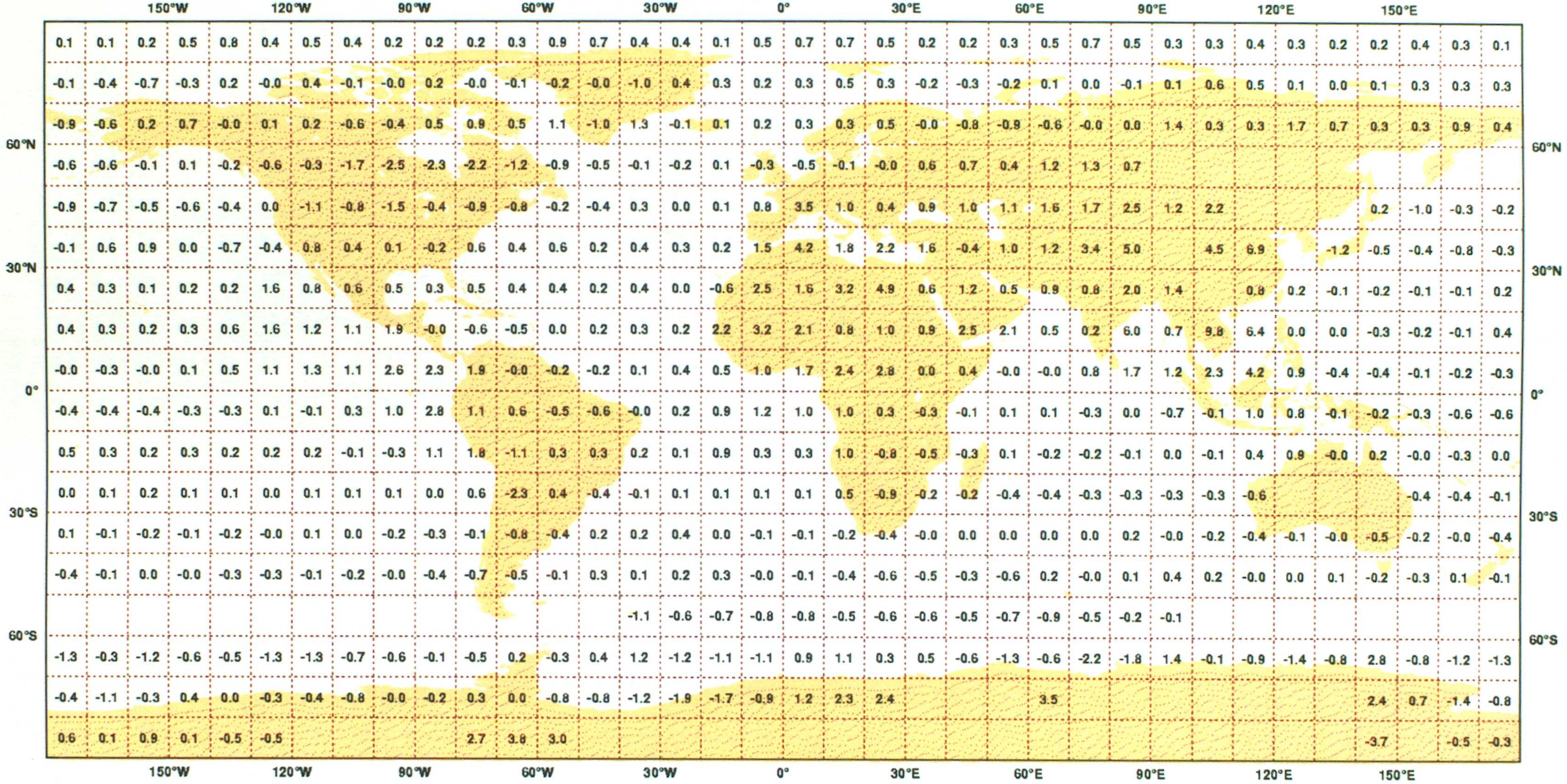

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0m/s

Figure 13. SATOB 701 - 1000 hPa mean O-B speed differences (ms-1). JUNE 2005
All observations
Values are plotted where greater than 10 obs are present



0.1	0.1	0.2	0.5	0.8	0.4	0.5	0.4	0.2	0.2	0.2	0.3	0.9	0.7	0.4	0.4	0.1	0.5	0.7	0.7	0.5	0.2	0.2	0.3	0.5	0.7	0.5	0.3	0.3	0.4	0.3	0.2	0.2	0.4	0.3	0.1
-0.1	-0.4	-0.7	-0.3	0.2	-0.0	0.4	-0.1	-0.0	0.2	-0.0	-0.1	-0.2	-0.0	-1.0	0.4	0.3	0.2	0.3	0.5	0.3	-0.2	-0.3	-0.2	0.1	0.0	-0.1	0.1	0.6	0.5	0.1	0.0	0.1	0.3	0.3	0.3
-0.9	-0.6	0.2	0.7	-0.0	0.1	0.2	-0.6	-0.4	0.5	0.9	0.5	1.1	-1.0	1.3	-0.1	0.1	0.2	0.3	0.3	0.5	-0.0	-0.8	-0.9	-0.6	-0.0	0.0	1.4	0.3	0.3	1.7	0.7	0.3	0.3	0.9	0.4
-0.6	-0.6	-0.1	0.1	-0.2	-0.6	-0.3	-1.7	-2.5	-2.3	-2.2	-1.2	-0.9	-0.5	-0.1	-0.2	0.1	-0.3	-0.5	-0.1	-0.0	0.6	0.7	0.4	1.2	1.3	0.7									
-0.9	-0.7	-0.5	-0.6	-0.4	0.0	-1.1	-0.8	-1.5	-0.4	-0.9	-0.8	-0.2	-0.4	0.3	0.0	0.1	0.8	3.5	1.0	0.4	0.9	1.0	1.1	1.6	1.7	2.5	1.2	2.2				0.2	-1.0	-0.3	-0.2
-0.1	0.6	0.9	0.0	-0.7	-0.4	0.8	0.4	0.1	-0.2	0.6	0.4	0.6	0.2	0.4	0.3	0.2	1.5	4.2	1.8	2.2	1.6	-0.4	1.0	1.2	3.4	5.0		4.5	6.9		-1.2	-0.5	-0.4	-0.8	-0.3
0.4	0.3	0.1	0.2	0.2	1.6	0.8	0.6	0.5	0.3	0.5	0.4	0.4	0.2	0.4	0.0	-0.6	2.5	1.6	3.2	4.9	0.6	1.2	0.5	0.9	0.8	2.0	1.4		0.8	0.2	-0.1	-0.2	-0.1	-0.1	0.2
0.4	0.3	0.2	0.3	0.6	1.6	1.2	1.1	1.9	-0.0	-0.6	-0.5	0.0	0.2	0.3	0.2	2.2	3.2	2.1	0.8	1.0	0.9	2.5	2.1	0.5	0.2	6.0	0.7	9.8	6.4	0.0	0.0	-0.3	-0.2	-0.1	0.4
-0.0	-0.3	-0.0	0.1	0.5	1.1	1.3	1.1	2.6	2.3	1.9	-0.0	-0.2	-0.2	0.1	0.4	0.5	1.0	1.7	2.4	2.8	0.0	0.4	-0.0	-0.0	0.8	1.7	1.2	2.3	4.2	0.9	-0.4	-0.4	-0.1	-0.2	-0.3
-0.4	-0.4	-0.4	-0.3	-0.3	0.1	-0.1	0.3	1.0	2.8	1.1	0.6	-0.5	-0.6	-0.0	0.2	0.9	1.2	1.0	1.0	0.3	-0.3	-0.1	0.1	0.1	-0.3	0.0	-0.7	-0.1	1.0	0.8	-0.1	-0.2	-0.3	-0.6	-0.6
0.5	0.3	0.2	0.3	0.2	0.2	0.2	-0.1	-0.3	1.1	1.8	-1.1	0.3	0.3	0.2	0.1	0.9	0.3	0.3	1.0	-0.8	-0.5	-0.3	0.1	-0.2	-0.2	-0.1	0.0	-0.1	0.4	0.9	-0.0	0.2	-0.0	-0.3	0.0
0.0	0.1	0.2	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.6	-2.3	0.4	-0.4	-0.1	0.1	0.1	0.1	0.1	0.5	-0.9	-0.2	-0.2	-0.4	-0.4	-0.3	-0.3	-0.3	-0.3	-0.6				-0.4	-0.4	-0.1
0.1	-0.1	-0.2	-0.1	-0.2	-0.0	0.1	0.0	-0.2	-0.3	-0.1	-0.8	-0.4	0.2	0.2	0.4	0.0	-0.1	-0.1	-0.2	-0.4	-0.0	0.0	0.0	0.0	0.0	0.2	-0.0	-0.2	-0.4	-0.1	-0.0	-0.5	-0.2	-0.0	-0.4
-0.4	-0.1	0.0	-0.0	-0.3	-0.3	-0.1	-0.2	-0.0	-0.4	-0.7	-0.5	-0.1	0.3	0.1	0.2	0.3	-0.0	-0.1	-0.4	-0.6	-0.5	-0.3	-0.6	0.2	-0.0	0.1	0.4	0.2	-0.0	0.0	0.1	-0.2	-0.3	0.1	-0.1
														-1.1	-0.6	-0.7	-0.8	-0.8	-0.5	-0.6	-0.6	-0.5	-0.7	-0.9	-0.5	-0.2	-0.1								
-1.3	-0.3	-1.2	-0.6	-0.5	-1.3	-1.3	-0.7	-0.6	-0.1	-0.5	0.2	-0.3	0.4	1.2	-1.2	-1.1	-1.1	0.9	1.1	0.3	0.5	-0.6	-1.3	-0.6	-2.2	-1.8	1.4	-0.1	-0.9	-1.4	-0.8	2.8	-0.8	-1.2	-1.3
-0.4	-1.1	-0.3	0.4	0.0	-0.3	-0.4	-0.8	-0.0	-0.2	0.3	0.0	-0.8	-0.8	-1.2	-1.9	-1.7	-0.9	1.2	2.3	2.4				3.5								2.4	0.7	-1.4	-0.8
0.6	0.1	0.9	0.1	-0.5	-0.5					2.7	3.8	3.0																				-3.7		-0.5	-0.3

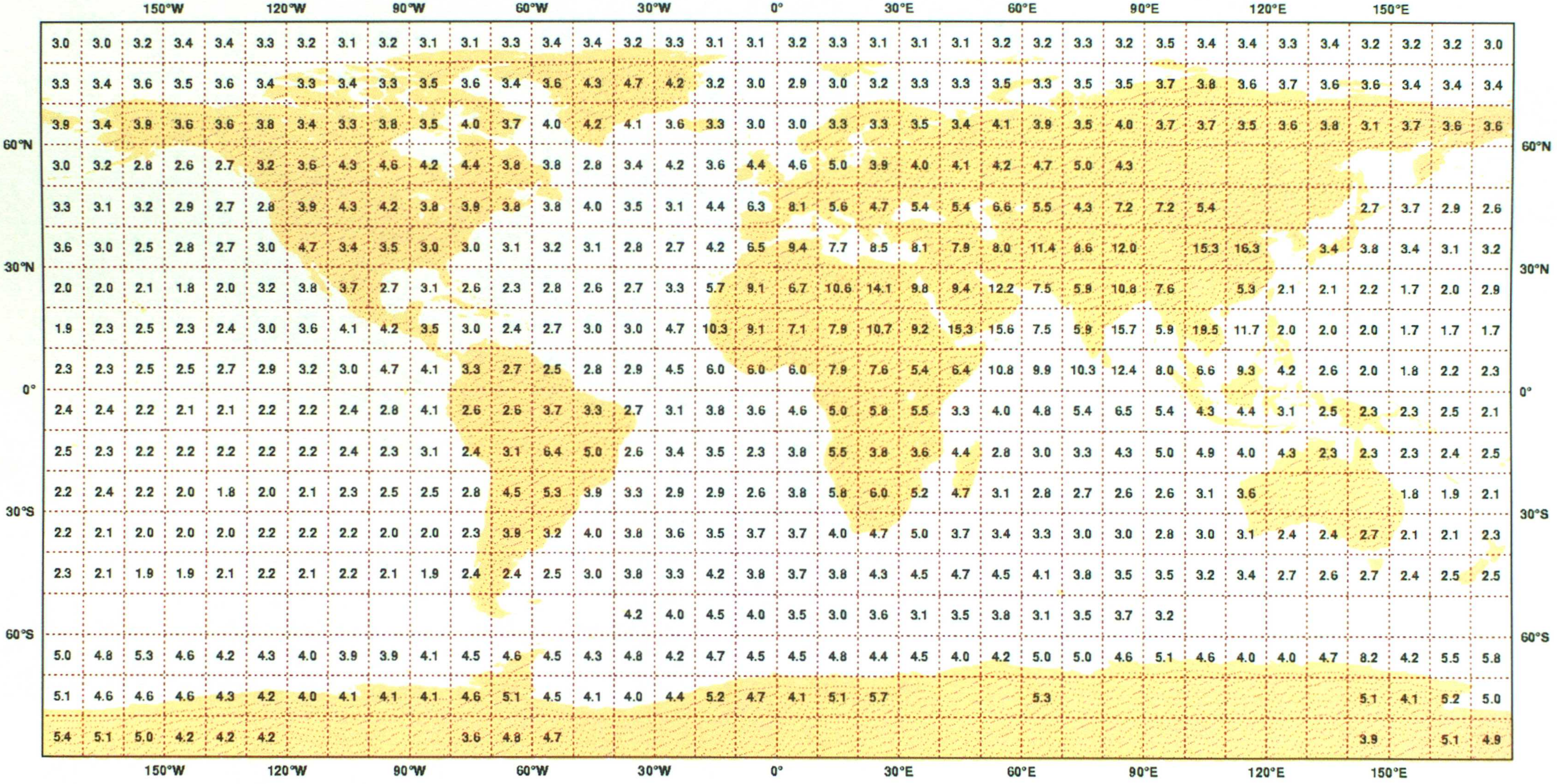
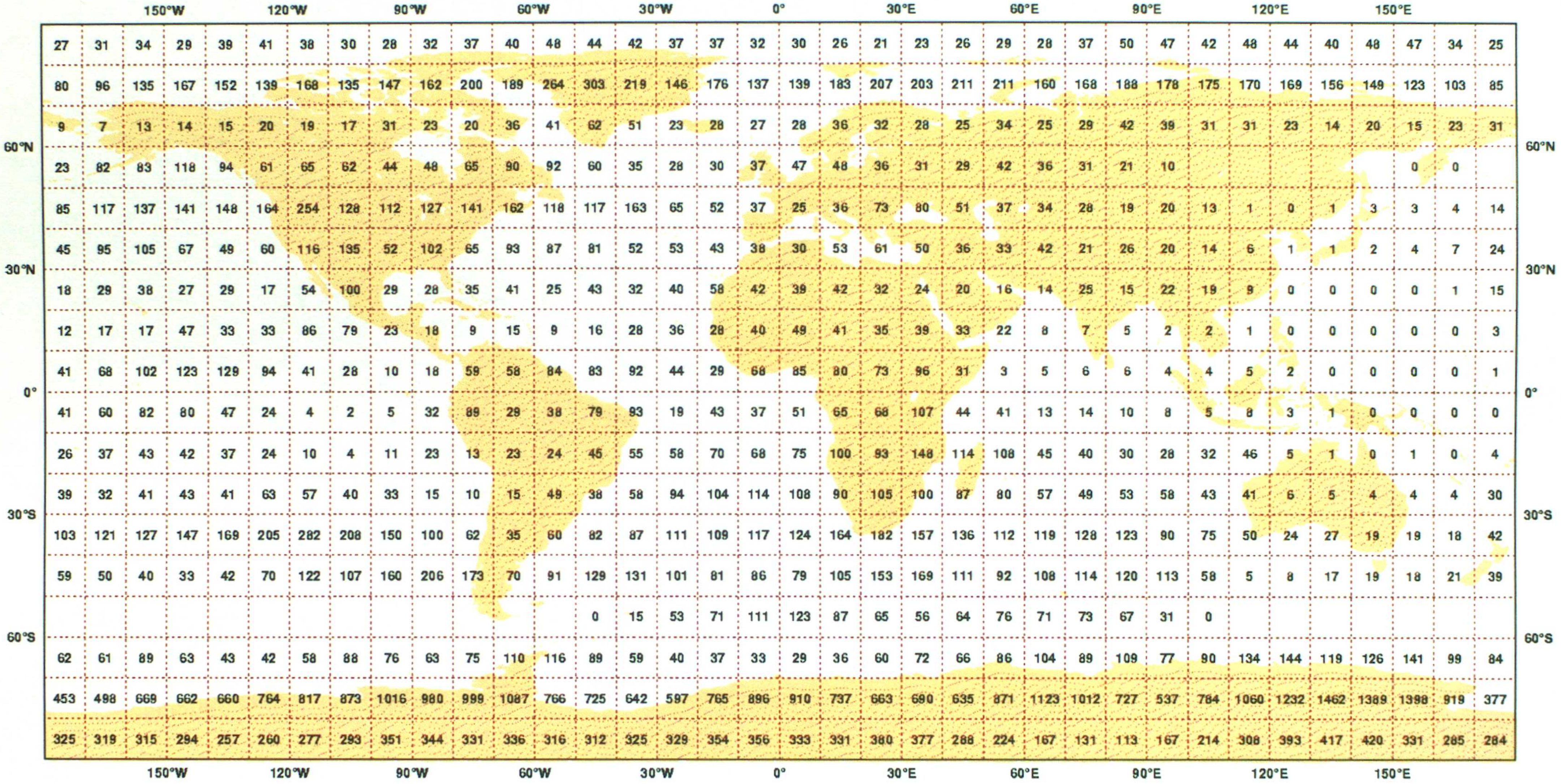


Figure 14. SATOB 701 - 1000 hPa mean RMS O-B vector differences (ms-1). JUNE 2005
All observations
Values are plotted where greater than 10 obs are present

3.0	3.0	3.2	3.4	3.4	3.3	3.2	3.1	3.2	3.1	3.1	3.3	3.4	3.4	3.2	3.3	3.1	3.1	3.2	3.3	3.1	3.1	3.1	3.2	3.2	3.3	3.2	3.5	3.4	3.4	3.3	3.4	3.2	3.2	3.2	3.0
3.3	3.4	3.6	3.5	3.6	3.4	3.3	3.4	3.3	3.5	3.6	3.4	3.6	4.3	4.7	4.2	3.2	3.0	2.9	3.0	3.2	3.3	3.3	3.5	3.3	3.5	3.5	3.7	3.8	3.6	3.7	3.6	3.6	3.4	3.4	3.4
3.9	3.4	3.9	3.6	3.6	3.8	3.4	3.3	3.8	3.5	4.0	3.7	4.0	4.2	4.1	3.6	3.3	3.0	3.0	3.3	3.3	3.5	3.4	4.1	3.9	3.5	4.0	3.7	3.7	3.5	3.6	3.8	3.1	3.7	3.6	3.6
3.0	3.2	2.8	2.6	2.7	3.2	3.6	4.3	4.6	4.2	4.4	3.8	3.8	2.8	3.4	4.2	3.6	4.4	4.6	5.0	3.9	4.0	4.1	4.2	4.7	5.0	4.3									
3.3	3.1	3.2	2.9	2.7	2.8	3.9	4.3	4.2	3.8	3.9	3.8	3.8	4.0	3.5	3.1	4.4	6.3	8.1	5.6	4.7	5.4	5.4	6.6	5.5	4.3	7.2	7.2	5.4				2.7	3.7	2.9	2.6
3.6	3.0	2.5	2.8	2.7	3.0	4.7	3.4	3.5	3.0	3.0	3.1	3.2	3.1	2.8	2.7	4.2	6.5	9.4	7.7	8.5	8.1	7.9	8.0	11.4	8.6	12.0		15.3	16.3		3.4	3.8	3.4	3.1	3.2
2.0	2.0	2.1	1.8	2.0	3.2	3.8	3.7	2.7	3.1	2.6	2.3	2.8	2.6	2.7	3.3	5.7	9.1	6.7	10.6	14.1	9.8	9.4	12.2	7.5	5.9	10.8	7.6		5.3	2.1	2.1	2.2	1.7	2.0	2.9
1.9	2.3	2.5	2.3	2.4	3.0	3.6	4.1	4.2	3.5	3.0	2.4	2.7	3.0	3.0	4.7	10.3	9.1	7.1	7.9	10.7	9.2	15.3	15.6	7.5	5.9	15.7	5.9	19.5	11.7	2.0	2.0	2.0	1.7	1.7	1.7
2.3	2.3	2.5	2.5	2.7	2.9	3.2	3.0	4.7	4.1	3.3	2.7	2.5	2.8	2.9	4.5	6.0	6.0	6.0	7.9	7.6	5.4	6.4	10.8	9.9	10.3	12.4	8.0	6.6	9.3	4.2	2.6	2.0	1.8	2.2	2.3
2.4	2.4	2.2	2.1	2.1	2.2	2.2	2.4	2.8	4.1	2.6	2.6	3.7	3.3	2.7	3.1	3.8	3.6	4.6	5.0	5.8	5.5	3.3	4.0	4.8	5.4	6.5	5.4	4.3	4.4	3.1	2.5	2.3	2.3	2.5	2.1
2.5	2.3	2.2	2.2	2.2	2.2	2.2	2.4	2.3	3.1	2.4	3.1	6.4	5.0	2.6	3.4	3.5	2.3	3.8	5.5	3.8	3.6	4.4	2.8	3.0	3.3	4.3	5.0	4.9	4.0	4.3	2.3	2.3	2.3	2.4	2.5
2.2	2.4	2.2	2.0	1.8	2.0	2.1	2.3	2.5	2.5	2.8	4.5	5.3	3.9	3.3	2.9	2.9	2.6	3.8	5.8	6.0	5.2	4.7	3.1	2.8	2.7	2.6	2.6	3.1	3.6				1.8	1.9	2.1
2.2	2.1	2.0	2.0	2.0	2.2	2.2	2.2	2.0	2.0	2.3	3.9	3.2	4.0	3.8	3.6	3.5	3.7	3.7	4.0	4.7	5.0	3.7	3.4	3.3	3.0	3.0	2.8	3.0	3.1	2.4	2.4	2.7	2.1	2.1	2.3
2.3	2.1	1.9	1.9	2.1	2.2	2.1	2.2	2.1	1.9	2.4	2.4	2.5	3.0	3.8	3.3	4.2	3.8	3.7	3.8	4.3	4.5	4.7	4.5	4.1	3.8	3.5	3.5	3.2	3.4	2.7	2.6	2.7	2.4	2.5	2.5
														4.2	4.0	4.5	4.0	3.5	3.0	3.6	3.1	3.5	3.8	3.1	3.5	3.7	3.2								
5.0	4.8	5.3	4.6	4.2	4.3	4.0	3.9	3.9	4.1	4.5	4.6	4.5	4.3	4.8	4.2	4.7	4.5	4.5	4.8	4.4	4.5	4.0	4.2	5.0	5.0	4.6	5.1	4.6	4.0	4.0	4.7	8.2	4.2	5.5	5.8
5.1	4.6	4.6	4.6	4.3	4.2	4.0	4.1	4.1	4.1	4.6	5.1	4.5	4.1	4.0	4.4	5.2	4.7	4.1	5.1	5.7				5.3								5.1	4.1	5.2	5.0
5.4	5.1	5.0	4.2	4.2	4.2					3.6	4.8	4.7																				3.9		5.1	4.9

Figure 15. SATOB 401 - 700 hPa mean daily count. JUNE 2005
Global average number of observations in 24 hours = 74119



27	31	34	29	39	41	38	30	28	32	37	40	48	44	42	37	37	32	30	26	21	23	26	29	28	37	50	47	42	48	44	40	48	47	34	25
80	96	135	167	152	139	168	135	147	162	200	189	264	303	219	146	176	137	139	183	207	203	211	211	160	168	188	178	175	170	169	156	149	123	103	85
9	7	13	14	15	20	19	17	31	23	20	36	41	62	51	23	28	27	28	36	32	28	25	34	25	29	42	39	31	31	23	14	20	15	23	31
23	82	83	118	94	61	65	62	44	48	65	90	92	60	35	28	30	37	47	48	36	31	29	42	36	31	21	10						0	0	
85	117	137	141	148	164	254	128	112	127	141	162	118	117	163	65	52	37	25	36	73	80	51	37	34	28	19	20	13	1	0	1	3	3	4	14
45	95	105	67	49	60	116	135	52	102	65	93	87	81	52	53	43	38	30	53	61	50	36	33	42	21	26	20	14	6	1	1	2	4	7	24
18	29	38	27	29	17	54	100	29	28	35	41	25	43	32	40	58	42	39	42	32	24	20	16	14	25	15	22	19	9	0	0	0	0	1	15
12	17	17	47	33	33	86	79	23	18	9	15	9	16	28	36	28	40	49	41	35	39	33	22	8	7	5	2	2	1	0	0	0	0	0	3
41	68	102	123	129	94	41	28	10	18	59	58	84	83	92	44	29	68	85	80	73	96	31	3	5	6	6	4	4	5	2	0	0	0	0	1
41	60	82	80	47	24	4	2	5	32	89	29	38	79	93	19	43	37	51	65	68	107	44	41	13	14	10	8	5	8	3	1	0	0	0	0
26	37	43	42	37	24	10	4	11	23	13	23	24	45	55	58	70	68	75	100	93	148	114	108	45	40	30	28	32	46	5	1	0	1	0	4
39	32	41	43	41	63	57	40	33	15	10	15	49	38	58	94	104	114	108	90	105	100	87	80	57	49	53	58	43	41	6	5	4	4	4	30
103	121	127	147	169	205	282	208	150	100	62	35	60	82	87	111	109	117	124	164	182	157	136	112	119	128	123	90	75	50	24	27	19	19	18	42
59	50	40	33	42	70	122	107	160	206	173	70	91	129	131	101	81	86	79	105	153	169	111	92	108	114	120	113	58	5	8	17	19	18	21	39
													0	15	53	71	111	123	87	65	56	64	76	71	73	67	31	0							
62	61	89	63	43	42	58	88	76	63	75	110	116	89	59	40	37	33	29	36	60	72	66	86	104	89	109	77	90	134	144	119	126	141	99	84
453	498	669	662	660	764	817	873	1016	980	999	1087	766	725	642	597	765	896	910	737	663	690	635	871	1123	1012	727	537	784	1060	1232	1462	1389	1398	919	377
325	319	315	294	257	260	277	293	351	344	331	336	316	312	325	329	354	356	333	331	380	377	288	224	167	131	113	167	214	308	393	417	420	331	285	284

Figure 16. SATOB 401 - 700 hPa vector mean wind. JUNE 2005
All observations
Arrows are plotted where greater than 10 obs are present

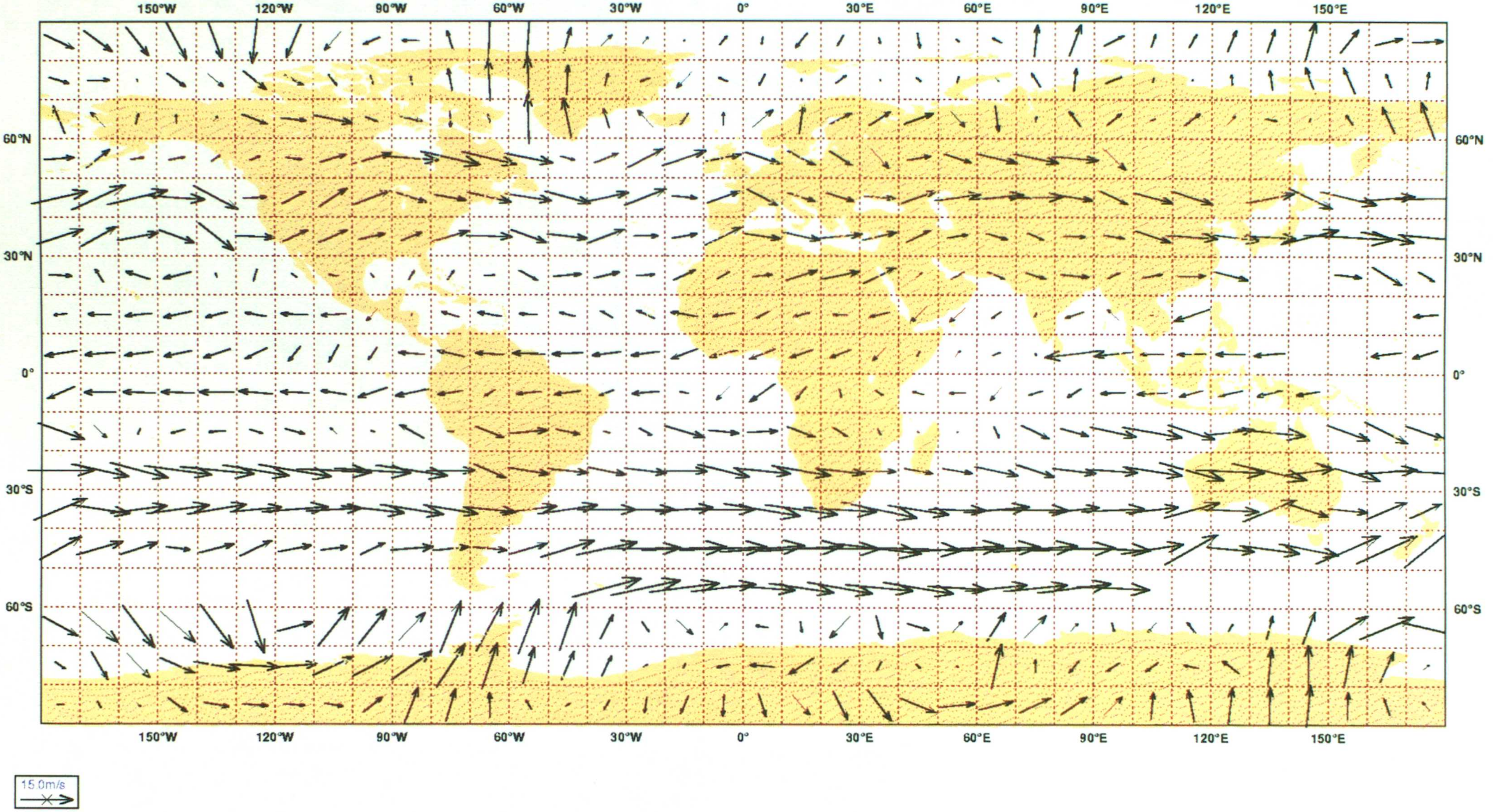

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 17. SATOB 401 - 700 hPa mean vector wind differences. JUNE 2005
All observations
Arrows are plotted where greater than 10 obs are present

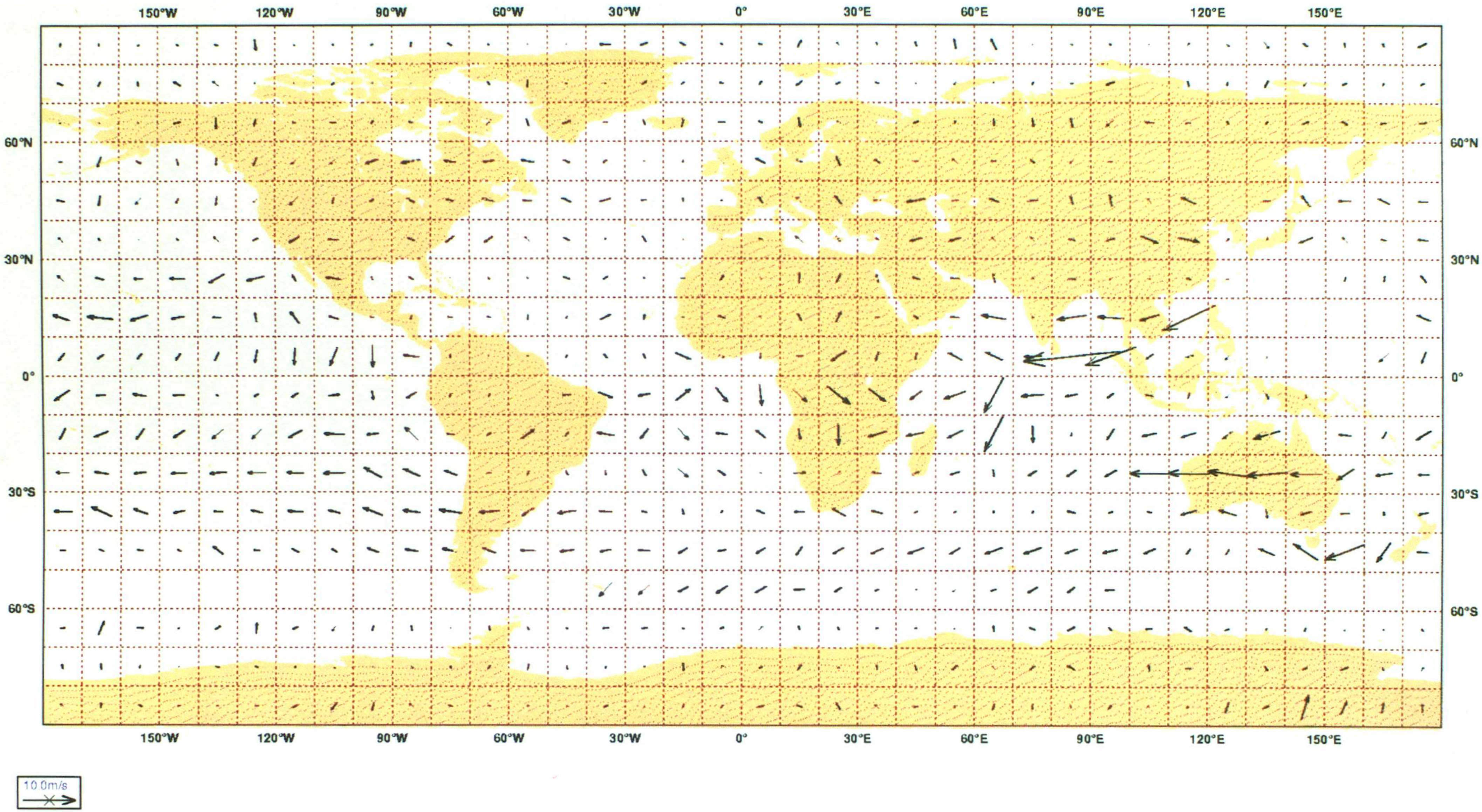
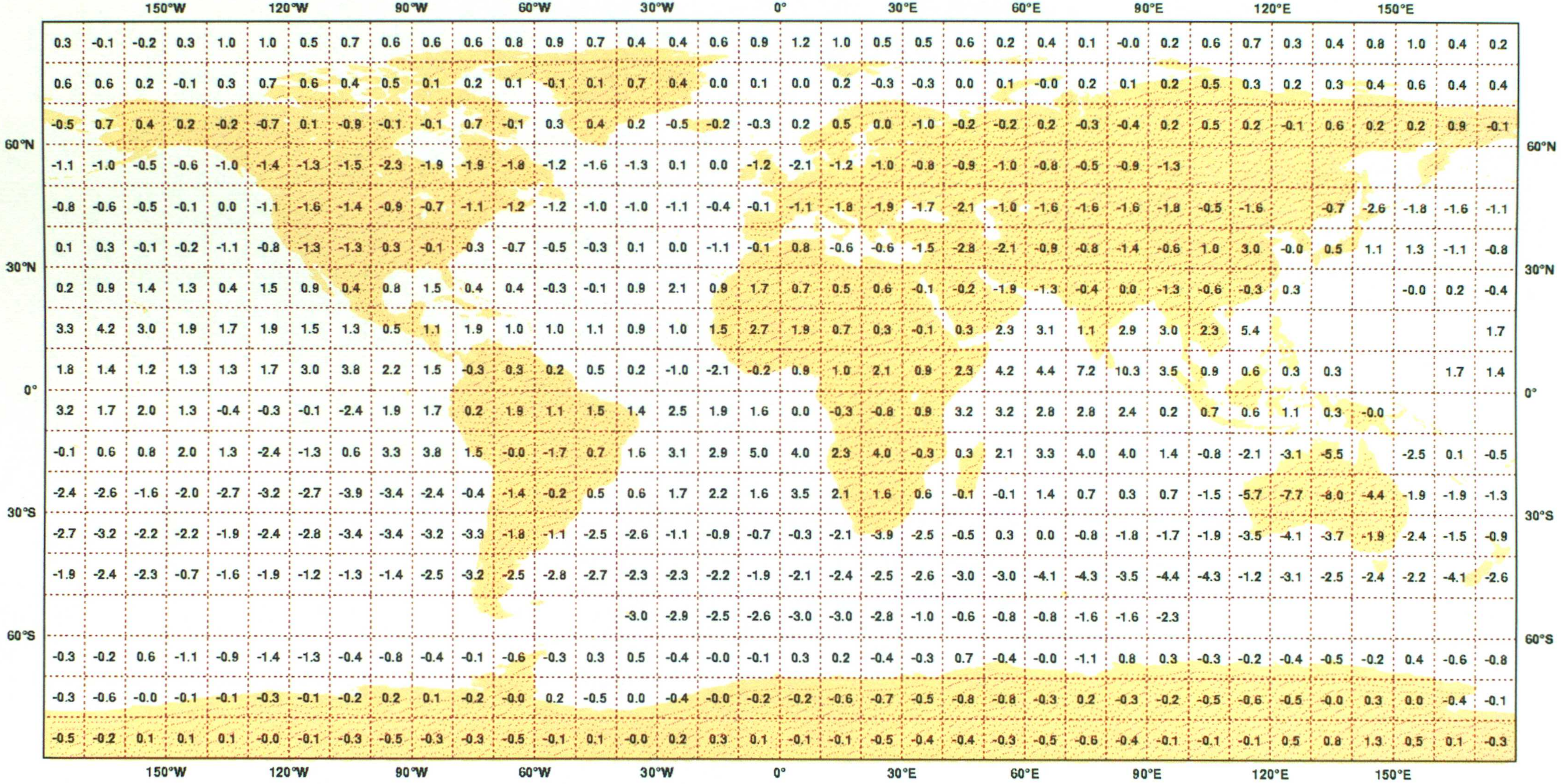
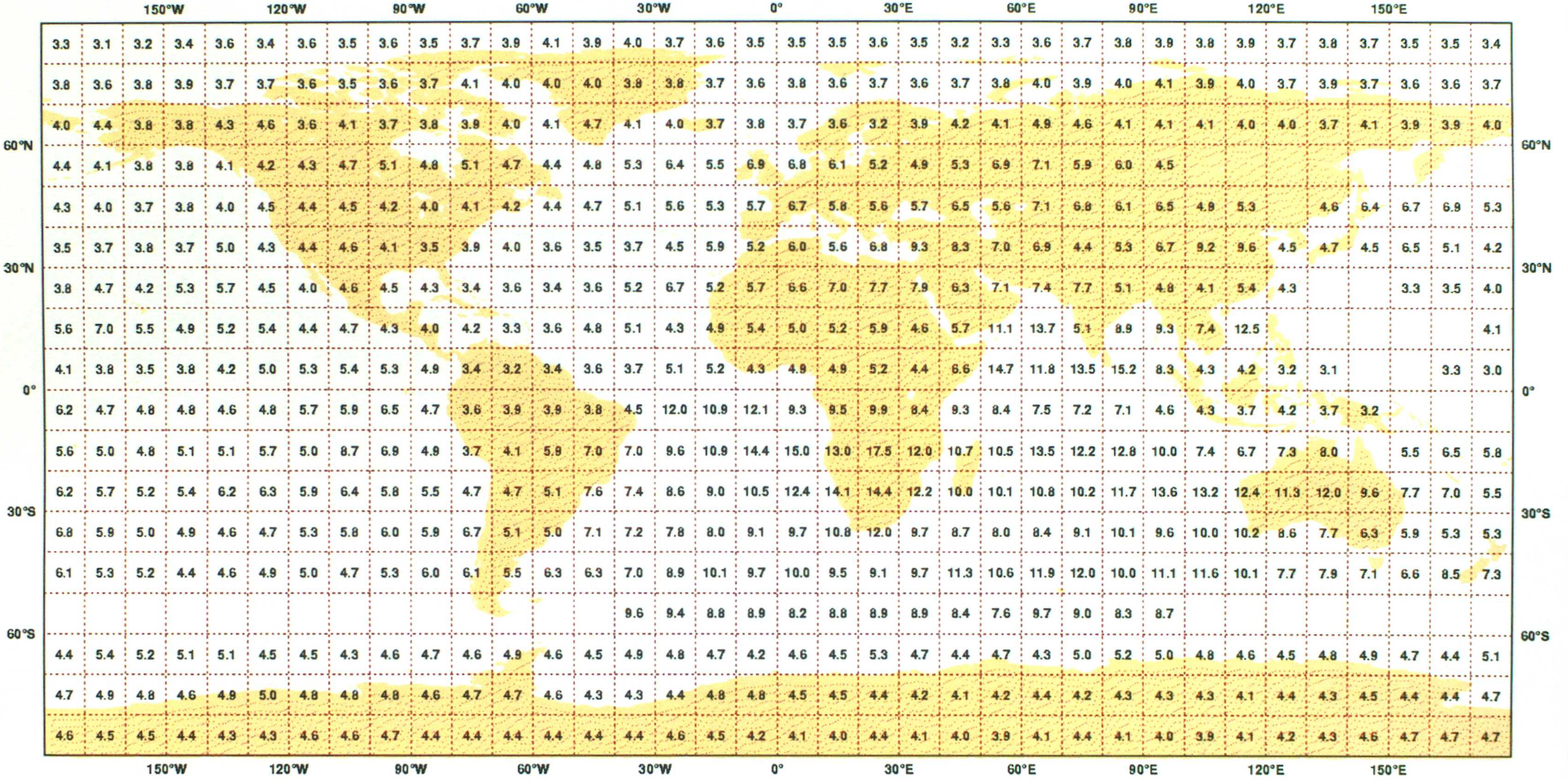

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0m/s

Figure 18. SATOB 401 - 700 hPa mean O-B speed differences (ms-1). JUNE 2005
All observations
Values are plotted where greater than 10 obs are present



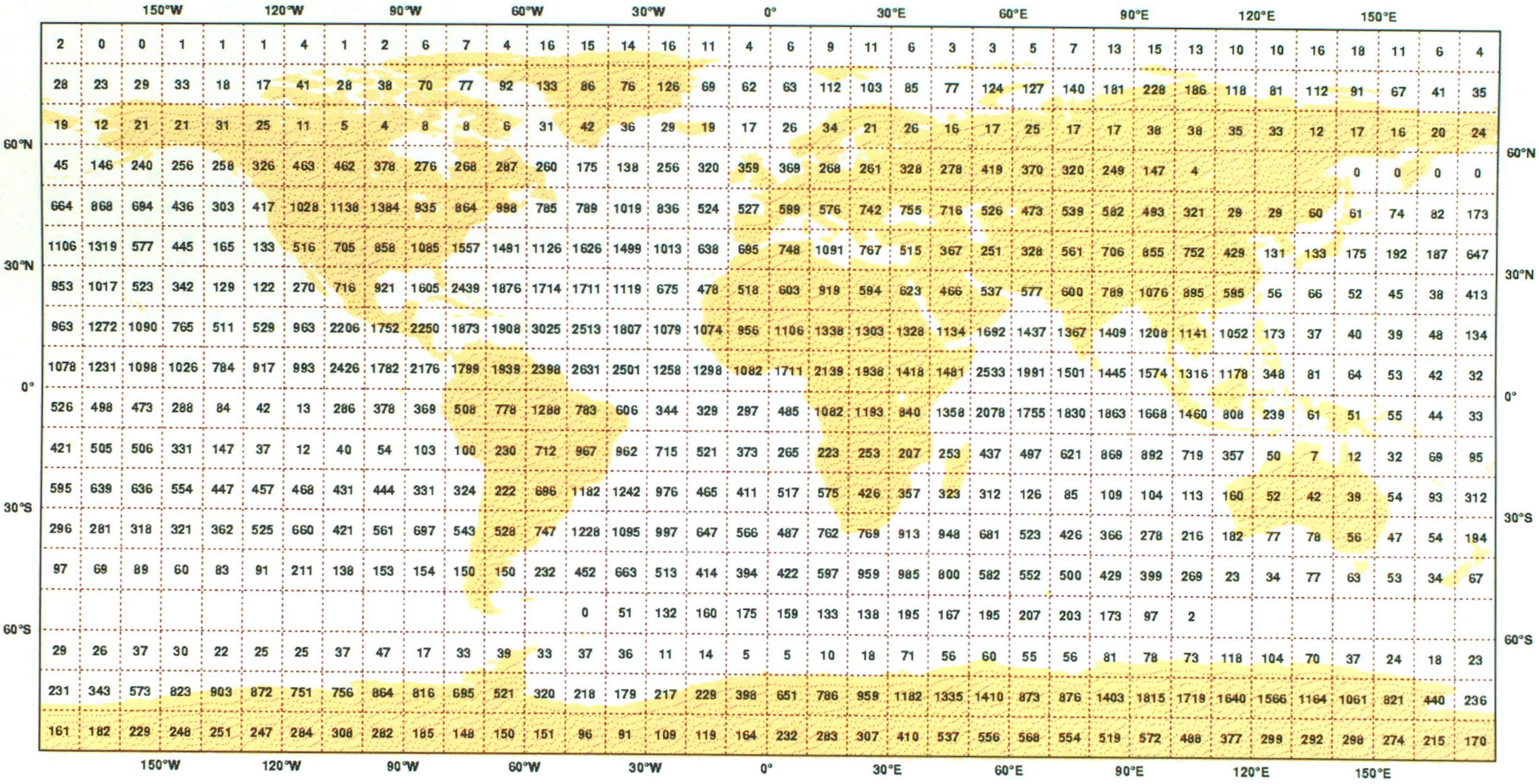
0.3	-0.1	-0.2	0.3	1.0	1.0	0.5	0.7	0.6	0.6	0.6	0.8	0.9	0.7	0.4	0.4	0.6	0.9	1.2	1.0	0.5	0.5	0.6	0.2	0.4	0.1	-0.0	0.2	0.6	0.7	0.3	0.4	0.8	1.0	0.4	0.2
0.6	0.6	0.2	-0.1	0.3	0.7	0.6	0.4	0.5	0.1	0.2	0.1	-0.1	0.1	0.7	0.4	0.0	0.1	0.0	0.2	-0.3	-0.3	0.0	0.1	-0.0	0.2	0.1	0.2	0.5	0.3	0.2	0.3	0.4	0.6	0.4	0.4
-0.5	0.7	0.4	0.2	-0.2	-0.7	0.1	-0.9	-0.1	-0.1	0.7	-0.1	0.3	0.4	0.2	-0.5	-0.2	-0.3	0.2	0.5	0.0	-1.0	-0.2	-0.2	0.2	-0.3	-0.4	0.2	0.5	0.2	-0.1	0.6	0.2	0.2	0.9	-0.1
-1.1	-1.0	-0.5	-0.6	-1.0	-1.4	-1.3	-1.5	-2.3	-1.9	-1.9	-1.8	-1.2	-1.6	-1.3	0.1	0.0	-1.2	-2.1	-1.2	-1.0	-0.8	-0.9	-1.0	-0.8	-0.5	-0.9	-1.3								
-0.8	-0.6	-0.5	-0.1	0.0	-1.1	-1.6	-1.4	-0.9	-0.7	-1.1	-1.2	-1.2	-1.0	-1.0	-1.1	-0.4	-0.1	-1.1	-1.8	-1.9	-1.7	-2.1	-1.0	-1.6	-1.6	-1.6	-1.8	-0.5	-1.6		-0.7	-2.6	-1.8	-1.6	-1.1
0.1	0.3	-0.1	-0.2	-1.1	-0.8	-1.3	-1.3	0.3	-0.1	-0.3	-0.7	-0.5	-0.3	0.1	0.0	-1.1	-0.1	0.8	-0.6	-0.6	-1.5	-2.8	-2.1	-0.9	-0.8	-1.4	-0.6	1.0	3.0	-0.0	0.5	1.1	1.3	-1.1	-0.8
0.2	0.9	1.4	1.3	0.4	1.5	0.9	0.4	0.8	1.5	0.4	0.4	-0.3	-0.1	0.9	2.1	0.9	1.7	0.7	0.5	0.6	-0.1	-0.2	-1.9	-1.3	-0.4	0.0	-1.3	-0.6	-0.3	0.3			-0.0	0.2	-0.4
3.3	4.2	3.0	1.9	1.7	1.9	1.5	1.3	0.5	1.1	1.9	1.0	1.0	1.1	0.9	1.0	1.5	2.7	1.9	0.7	0.3	-0.1	0.3	2.3	3.1	1.1	2.9	3.0	2.3	5.4						1.7
1.8	1.4	1.2	1.3	1.3	1.7	3.0	3.8	2.2	1.5	-0.3	0.3	0.2	0.5	0.2	-1.0	-2.1	-0.2	0.9	1.0	2.1	0.9	2.3	4.2	4.4	7.2	10.3	3.5	0.9	0.6	0.3	0.3			1.7	1.4
3.2	1.7	2.0	1.3	-0.4	-0.3	-0.1	-2.4	1.9	1.7	0.2	1.9	1.1	1.5	1.4	2.5	1.9	1.6	0.0	-0.3	-0.8	0.9	3.2	3.2	2.8	2.8	2.4	0.2	0.7	0.6	1.1	0.3	-0.0			
-0.1	0.6	0.8	2.0	1.3	-2.4	-1.3	0.6	3.3	3.8	1.5	-0.0	-1.7	0.7	1.6	3.1	2.9	5.0	4.0	2.3	4.0	-0.3	0.3	2.1	3.3	4.0	4.0	1.4	-0.8	-2.1	-3.1	-5.5		-2.5	0.1	-0.5
-2.4	-2.6	-1.6	-2.0	-2.7	-3.2	-2.7	-3.9	-3.4	-2.4	-0.4	-1.4	-0.2	0.5	0.6	1.7	2.2	1.6	3.5	2.1	1.6	0.6	-0.1	-0.1	1.4	0.7	0.3	0.7	-1.5	-5.7	-7.7	-8.0	-4.4	-1.9	-1.9	-1.3
-2.7	-3.2	-2.2	-2.2	-1.9	-2.4	-2.8	-3.4	-3.4	-3.2	-3.3	-1.8	-1.1	-2.5	-2.6	-1.1	-0.9	-0.7	-0.3	-2.1	-3.9	-2.5	-0.5	0.3	0.0	-0.8	-1.8	-1.7	-1.9	-3.5	-4.1	-3.7	-1.9	-2.4	-1.5	-0.9
-1.9	-2.4	-2.3	-0.7	-1.6	-1.9	-1.2	-1.3	-1.4	-2.5	-3.2	-2.5	-2.8	-2.7	-2.3	-2.3	-2.2	-1.9	-2.1	-2.4	-2.5	-2.6	-3.0	-3.0	-4.1	-4.3	-3.5	-4.4	-4.3	-1.2	-3.1	-2.5	-2.4	-2.2	-4.1	-2.6
														-3.0	-2.9	-2.5	-2.6	-3.0	-3.0	-2.8	-1.0	-0.6	-0.8	-0.8	-1.6	-1.6	-2.3								
-0.3	-0.2	0.6	-1.1	-0.9	-1.4	-1.3	-0.4	-0.8	-0.4	-0.1	-0.6	-0.3	0.3	0.5	-0.4	-0.0	-0.1	0.3	0.2	-0.4	-0.3	0.7	-0.4	-0.0	-1.1	0.8	0.3	-0.3	-0.2	-0.4	-0.5	-0.2	0.4	-0.6	-0.8
-0.3	-0.6	-0.0	-0.1	-0.1	-0.3	-0.1	-0.2	0.2	0.1	-0.2	-0.0	0.2	-0.5	0.0	-0.4	-0.0	-0.2	-0.2	-0.6	-0.7	-0.5	-0.8	-0.8	-0.3	0.2	-0.3	-0.2	-0.5	-0.6	-0.5	-0.0	0.3	0.0	-0.4	-0.1
-0.5	-0.2	0.1	0.1	0.1	-0.0	-0.1	-0.3	-0.5	-0.3	-0.3	-0.5	-0.1	0.1	-0.0	0.2	0.3	0.1	-0.1	-0.1	-0.5	-0.4	-0.4	-0.3	-0.5	-0.6	-0.4	-0.1	-0.1	-0.1	0.5	0.8	1.3	0.5	0.1	-0.3

Figure 19. SATOB 401 - 700 hPa mean RMS O-B vector differences (ms-1). JUNE 2005
All observations
Values are plotted where greater than 10 obs are present



3.3	3.1	3.2	3.4	3.6	3.4	3.6	3.5	3.6	3.5	3.7	3.9	4.1	3.9	4.0	3.7	3.6	3.5	3.5	3.5	3.6	3.5	3.2	3.3	3.6	3.7	3.8	3.9	3.8	3.9	3.7	3.8	3.7	3.5	3.5	3.4
3.8	3.6	3.8	3.9	3.7	3.7	3.6	3.5	3.6	3.7	4.1	4.0	4.0	4.0	3.8	3.8	3.7	3.6	3.8	3.6	3.7	3.6	3.7	3.8	4.0	3.9	4.0	4.1	3.9	4.0	3.7	3.9	3.7	3.6	3.6	3.7
4.0	4.4	3.8	3.8	4.3	4.6	3.6	4.1	3.7	3.8	3.9	4.0	4.1	4.7	4.1	4.0	3.7	3.8	3.7	3.6	3.2	3.9	4.2	4.1	4.9	4.6	4.1	4.1	4.1	4.0	4.0	3.7	4.1	3.9	3.9	4.0
4.4	4.1	3.8	3.8	4.1	4.2	4.3	4.7	5.1	4.8	5.1	4.7	4.4	4.8	5.3	6.4	5.5	6.9	6.8	6.1	5.2	4.9	5.3	6.9	7.1	5.9	6.0	4.5								
4.3	4.0	3.7	3.8	4.0	4.5	4.4	4.5	4.2	4.0	4.1	4.2	4.4	4.7	5.1	5.6	5.3	5.7	6.7	5.8	5.6	5.7	6.5	5.6	7.1	6.8	6.1	6.5	4.8	5.3		4.6	6.4	6.7	6.9	5.3
3.5	3.7	3.8	3.7	5.0	4.3	4.4	4.6	4.1	3.5	3.9	4.0	3.6	3.5	3.7	4.5	5.9	5.2	6.0	5.6	6.8	9.3	8.3	7.0	6.9	4.4	5.3	6.7	9.2	9.6	4.5	4.7	4.5	6.5	5.1	4.2
3.8	4.7	4.2	5.3	5.7	4.5	4.0	4.6	4.5	4.3	3.4	3.6	3.4	3.6	5.2	6.7	5.2	5.7	6.6	7.0	7.7	7.9	6.3	7.1	7.4	7.7	5.1	4.8	4.1	5.4	4.3			3.3	3.5	4.0
5.6	7.0	5.5	4.9	5.2	5.4	4.4	4.7	4.3	4.0	4.2	3.3	3.6	4.8	5.1	4.3	4.9	5.4	5.0	5.2	5.9	4.6	5.7	11.1	13.7	5.1	8.9	9.3	7.4	12.5						4.1
4.1	3.8	3.5	3.8	4.2	5.0	5.3	5.4	5.3	4.9	3.4	3.2	3.4	3.6	3.7	5.1	5.2	4.3	4.9	4.9	5.2	4.4	6.6	14.7	11.8	13.5	15.2	8.3	4.3	4.2	3.2	3.1			3.3	3.0
6.2	4.7	4.8	4.8	4.6	4.8	5.7	5.9	6.5	4.7	3.6	3.9	3.9	3.8	4.5	12.0	10.9	12.1	9.3	9.5	9.9	8.4	9.3	8.4	7.5	7.2	7.1	4.6	4.3	3.7	4.2	3.7	3.2			
5.6	5.0	4.8	5.1	5.1	5.7	5.0	8.7	6.9	4.9	3.7	4.1	5.9	7.0	7.0	9.6	10.9	14.4	15.0	13.0	17.5	12.0	10.7	10.5	13.5	12.2	12.8	10.0	7.4	6.7	7.3	8.0		5.5	6.5	5.8
6.2	5.7	5.2	5.4	6.2	6.3	5.9	6.4	5.8	5.5	4.7	4.7	5.1	7.6	7.4	8.6	9.0	10.5	12.4	14.1	14.4	12.2	10.0	10.1	10.8	10.2	11.7	13.6	13.2	12.4	11.3	12.0	9.6	7.7	7.0	5.5
6.8	5.9	5.0	4.9	4.6	4.7	5.3	5.8	6.0	5.9	6.7	5.1	5.0	7.1	7.2	7.8	8.0	9.1	9.7	10.8	12.0	9.7	8.7	8.0	8.4	9.1	10.1	9.6	10.0	10.2	8.6	7.7	6.3	5.9	5.3	5.3
6.1	5.3	5.2	4.4	4.6	4.9	5.0	4.7	5.3	6.0	6.1	5.5	6.3	6.3	7.0	8.9	10.1	9.7	10.0	9.5	9.1	9.7	11.3	10.6	11.9	12.0	10.0	11.1	11.6	10.1	7.7	7.9	7.1	6.6	8.5	7.3
														9.6	9.4	8.8	8.9	8.2	8.8	8.9	8.9	8.4	7.6	9.7	9.0	8.3	8.7								
4.4	5.4	5.2	5.1	5.1	4.5	4.5	4.3	4.6	4.7	4.6	4.9	4.6	4.5	4.9	4.8	4.7	4.2	4.6	4.5	5.3	4.7	4.4	4.7	4.3	5.0	5.2	5.0	4.8	4.6	4.5	4.8	4.9	4.7	4.4	5.1
4.7	4.9	4.8	4.6	4.9	5.0	4.8	4.8	4.8	4.6	4.7	4.7	4.6	4.3	4.3	4.4	4.8	4.8	4.5	4.5	4.4	4.2	4.1	4.2	4.4	4.2	4.3	4.3	4.3	4.1	4.4	4.3	4.5	4.4	4.4	4.7
4.6	4.5	4.5	4.4	4.3	4.3	4.6	4.6	4.7	4.4	4.4	4.4	4.4	4.4	4.4	4.6	4.5	4.2	4.1	4.0	4.4	4.1	4.0	3.9	4.1	4.4	4.1	4.0	3.9	4.1	4.2	4.3	4.6	4.7	4.7	4.7

Figure 20. SATOB 101 - 400 hPa mean daily count. JUNE 2005
Global average number of observations in 24 hours = 300438



2	0	0	1	1	1	4	1	2	6	7	4	16	15	14	16	11	4	6	9	11	6	3	3	5	7	13	15	13	10	10	16	18	11	6	4
28	23	29	33	18	17	41	28	38	70	77	92	133	86	76	126	69	62	63	112	103	85	77	124	127	140	181	228	186	118	81	112	91	67	41	35
19	12	21	21	31	25	11	5	4	8	8	6	31	42	36	29	19	17	26	34	21	26	16	17	25	17	17	38	38	35	33	12	17	16	20	24
45	146	240	256	258	326	463	462	378	276	268	287	260	175	138	256	320	359	369	268	261	328	278	419	370	320	249	147	4				0	0	0	0
664	868	694	436	303	417	1028	1138	1384	935	864	998	785	789	1019	836	524	527	599	576	742	755	716	526	473	539	582	493	321	29	29	60	61	74	82	173
1106	1319	577	445	165	133	516	705	858	1085	1557	1491	1126	1626	1499	1013	638	695	748	1091	767	515	367	251	328	561	706	855	752	429	131	133	175	192	187	647
953	1017	523	342	129	122	270	716	921	1605	2439	1876	1714	1711	1119	675	478	518	603	919	594	623	466	537	577	600	789	1076	895	595	56	66	52	45	38	413
963	1272	1090	765	511	529	963	2206	1752	2250	1873	1908	3025	2513	1807	1079	1074	956	1106	1338	1303	1328	1134	1692	1437	1367	1409	1208	1141	1052	173	37	40	39	48	134
1078	1231	1098	1026	784	917	993	2426	1782	2176	1799	1939	2398	2631	2501	1258	1298	1082	1711	2139	1938	1418	1481	2533	1991	1501	1445	1574	1316	1178	348	81	64	53	42	32
526	498	473	288	84	42	13	286	378	369	508	778	1288	783	606	344	329	297	485	1082	1193	840	1358	2078	1755	1830	1863	1668	1460	808	239	61	51	55	44	33
421	505	506	331	147	37	12	40	54	103	100	230	712	967	962	715	521	373	265	223	253	207	253	437	497	621	869	892	719	357	50	7	12	32	69	95
595	639	636	554	447	457	468	431	444	331	324	222	696	1182	1242	976	465	411	517	575	426	357	323	312	126	85	109	104	113	160	52	42	39	54	93	312
296	281	318	321	362	525	660	421	561	697	543	528	747	1228	1095	997	647	566	487	762	769	913	948	681	523	426	366	278	216	182	77	78	56	47	54	194
97	69	89	60	83	91	211	138	153	154	150	150	232	452	663	513	414	394	422	597	959	985	800	582	552	500	429	399	269	23	34	77	63	53	34	67
													0	51	132	160	175	159	133	138	195	167	195	207	203	173	97	2							
29	26	37	30	22	25	25	37	47	17	33	39	33	37	36	11	14	5	5	10	18	71	56	60	55	56	81	78	73	118	104	70	37	24	18	23
231	343	573	823	903	872	751	756	864	816	695	521	320	218	179	217	229	398	651	786	959	1182	1335	1410	873	876	1403	1815	1719	1640	1566	1164	1061	821	440	236
161	182	229	248	251	247	284	308	282	185	148	150	151	96	91	109	119	164	232	283	307	410	537	556	568	554	519	572	488	377	299	292	298	274	215	170

Figure 21. SATOB 101 - 400 hPa vector mean wind. JUNE 2005
All observations
Arrows are plotted where greater than 10 obs are present

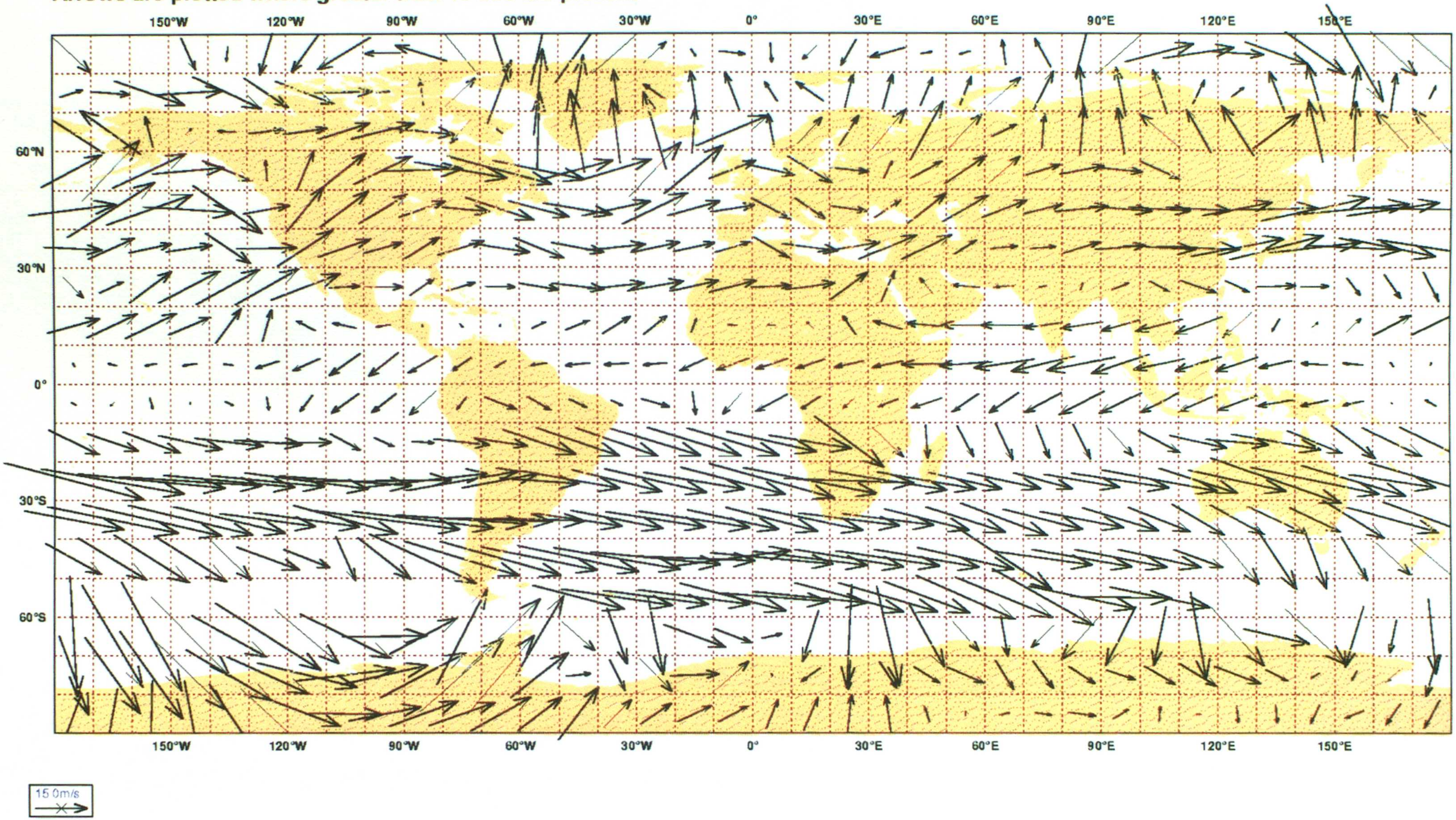

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
15.0m/s

Figure 22. SATOB 101 - 400 hPa mean vector wind differences. JUNE 2005
All observations
Arrows are plotted where greater than 10 obs are present

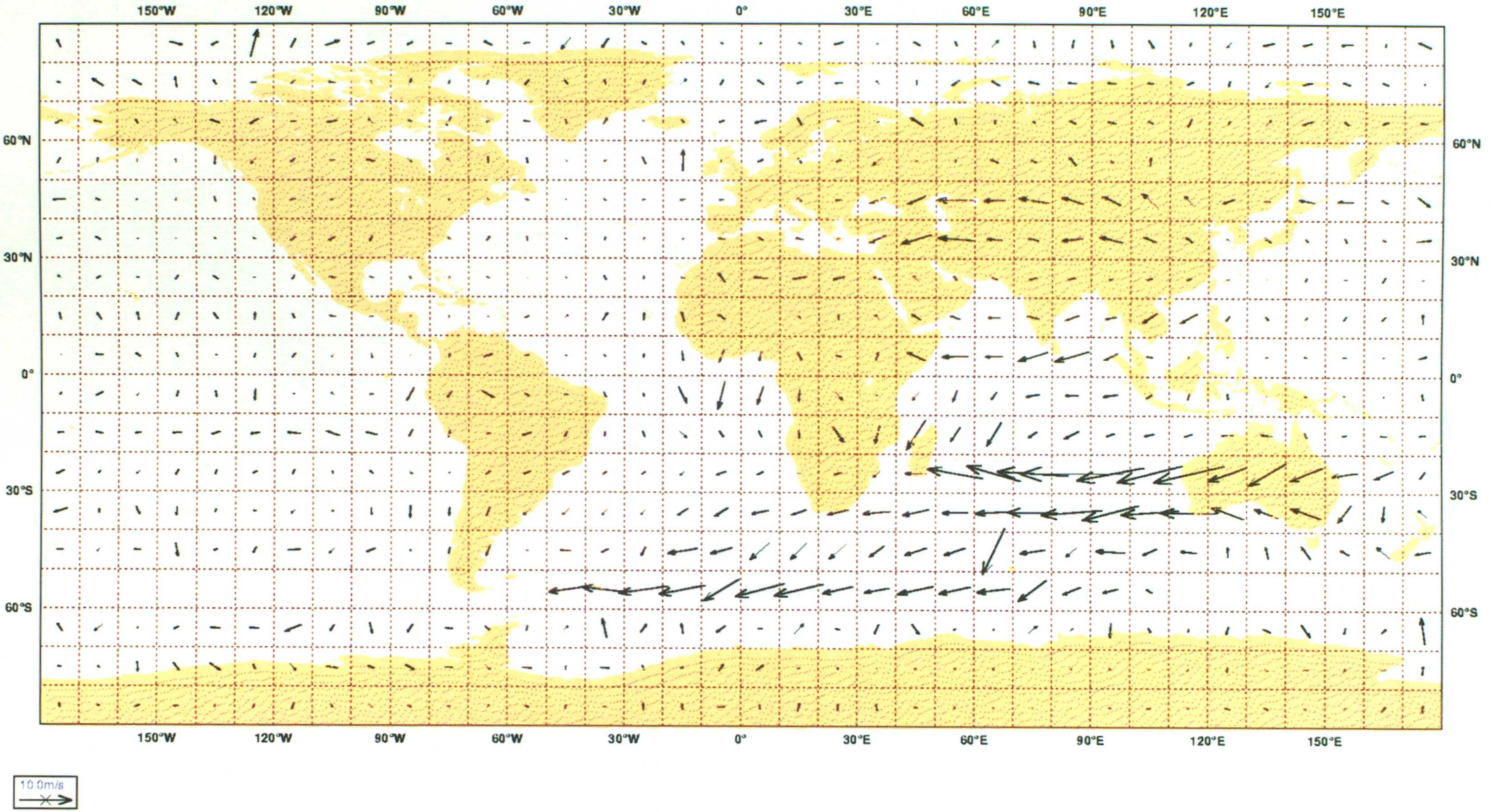
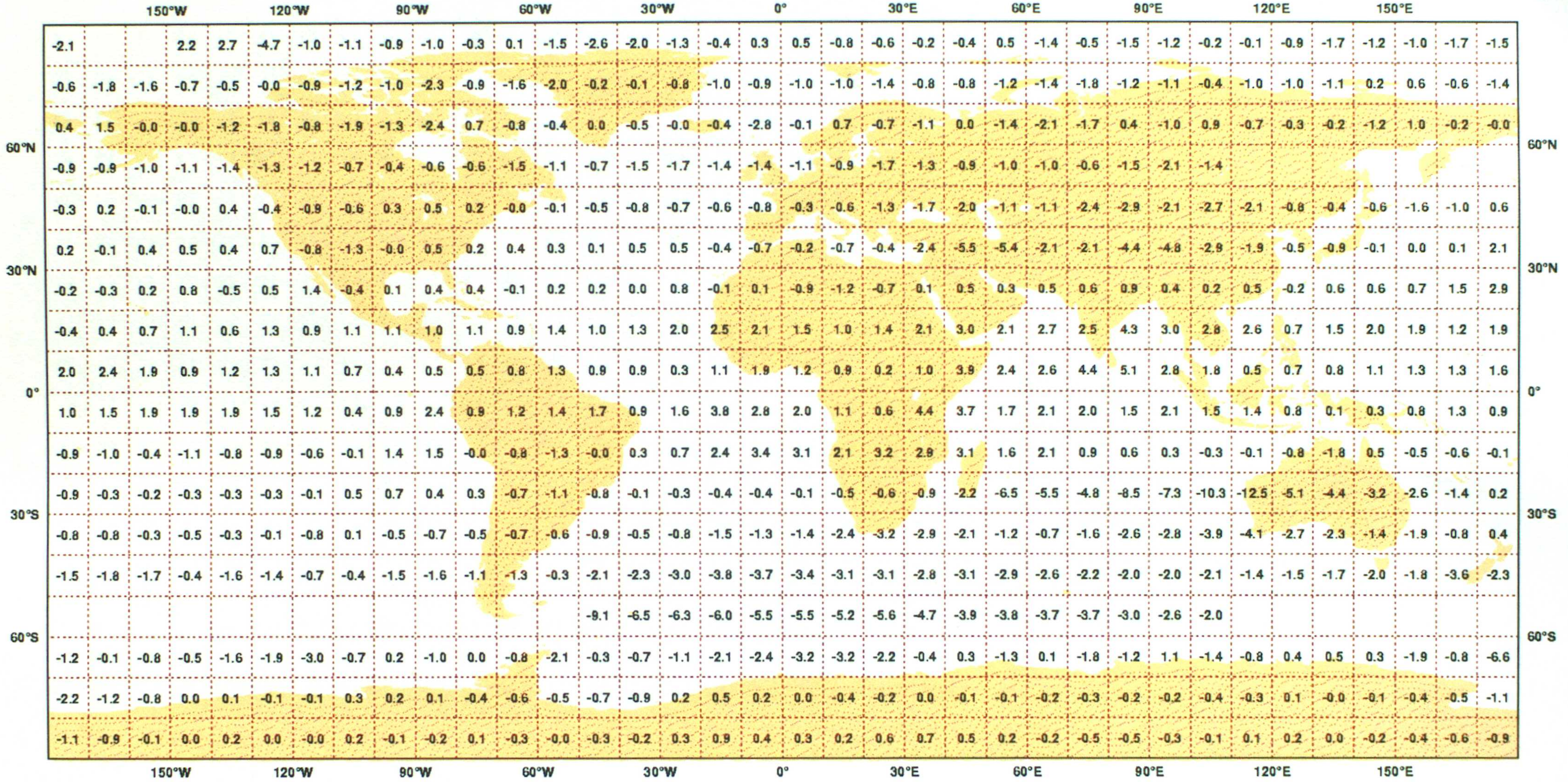

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
10.0m/s

Figure 23. SATOB 101 - 400 hPa mean O-B speed differences (ms-1). JUNE 2005
All observations
Values are plotted where greater than 10 obs are present

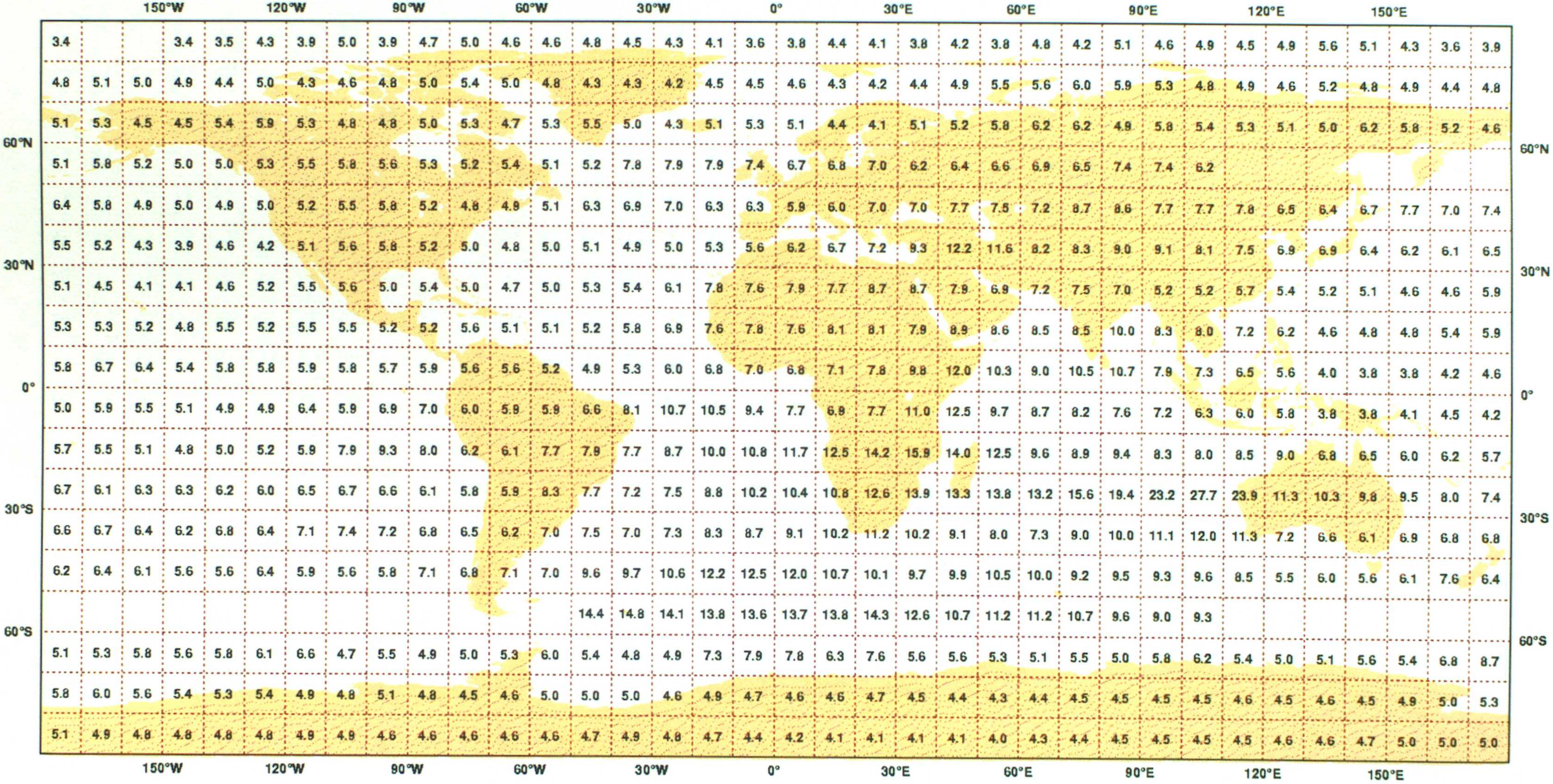


-2.1			2.2	2.7	-4.7	-1.0	-1.1	-0.9	-1.0	-0.3	0.1	-1.5	-2.6	-2.0	-1.3	-0.4	0.3	0.5	-0.8	-0.6	-0.2	-0.4	0.5	-1.4	-0.5	-1.5	-1.2	-0.2	-0.1	-0.9	-1.7	-1.2	-1.0	-1.7	-1.5
-0.6	-1.8	-1.6	-0.7	-0.5	-0.0	-0.9	-1.2	-1.0	-2.3	-0.9	-1.6	-2.0	-0.2	-0.1	-0.8	-1.0	-0.9	-1.0	-1.0	-1.4	-0.8	-0.8	-1.2	-1.4	-1.8	-1.2	-1.1	-0.4	-1.0	-1.0	-1.1	0.2	0.6	-0.6	-1.4
0.4	1.5	-0.0	-0.0	-1.2	-1.8	-0.8	-1.9	-1.3	-2.4	0.7	-0.8	-0.4	0.0	-0.5	-0.0	-0.4	-2.8	-0.1	0.7	-0.7	-1.1	0.0	-1.4	-2.1	-1.7	0.4	-1.0	0.9	-0.7	-0.3	-0.2	-1.2	1.0	-0.2	-0.0
-0.9	-0.9	-1.0	-1.1	-1.4	-1.3	-1.2	-0.7	-0.4	-0.6	-0.6	-1.5	-1.1	-0.7	-1.5	-1.7	-1.4	-1.4	-1.1	-0.9	-1.7	-1.3	-0.9	-1.0	-1.0	-0.6	-1.5	-2.1	-1.4							
-0.3	0.2	-0.1	-0.0	0.4	-0.4	-0.9	-0.6	0.3	0.5	0.2	-0.0	-0.1	-0.5	-0.8	-0.7	-0.6	-0.8	-0.3	-0.6	-1.3	-1.7	-2.0	-1.1	-1.1	-2.4	-2.9	-2.1	-2.7	-2.1	-0.8	-0.4	-0.6	-1.6	-1.0	0.6
0.2	-0.1	0.4	0.5	0.4	0.7	-0.8	-1.3	-0.0	0.5	0.2	0.4	0.3	0.1	0.5	0.5	-0.4	-0.7	-0.2	-0.7	-0.4	-2.4	-5.5	-5.4	-2.1	-2.1	-4.4	-4.8	-2.9	-1.9	-0.5	-0.9	-0.1	0.0	0.1	2.1
-0.2	-0.3	0.2	0.8	-0.5	0.5	1.4	-0.4	0.1	0.4	0.4	-0.1	0.2	0.2	0.0	0.8	-0.1	0.1	-0.9	-1.2	-0.7	0.1	0.5	0.3	0.5	0.6	0.9	0.4	0.2	0.5	-0.2	0.6	0.6	0.7	1.5	2.9
-0.4	0.4	0.7	1.1	0.6	1.3	0.9	1.1	1.1	1.0	1.1	0.9	1.4	1.0	1.3	2.0	2.5	2.1	1.5	1.0	1.4	2.1	3.0	2.1	2.7	2.5	4.3	3.0	2.8	2.6	0.7	1.5	2.0	1.9	1.2	1.9
2.0	2.4	1.9	0.9	1.2	1.3	1.1	0.7	0.4	0.5	0.5	0.8	1.3	0.9	0.9	0.3	1.1	1.9	1.2	0.9	0.2	1.0	3.9	2.4	2.6	4.4	5.1	2.8	1.8	0.5	0.7	0.8	1.1	1.3	1.3	1.6
1.0	1.5	1.9	1.9	1.9	1.5	1.2	0.4	0.9	2.4	0.9	1.2	1.4	1.7	0.9	1.6	3.8	2.8	2.0	1.1	0.6	4.4	3.7	1.7	2.1	2.0	1.5	2.1	1.5	1.4	0.8	0.1	0.3	0.8	1.3	0.9
-0.9	-1.0	-0.4	-1.1	-0.8	-0.9	-0.6	-0.1	1.4	1.5	-0.0	-0.8	-1.3	-0.0	0.3	0.7	2.4	3.4	3.1	2.1	3.2	2.9	3.1	1.6	2.1	0.9	0.6	0.3	-0.3	-0.1	-0.8	-1.8	0.5	-0.5	-0.6	-0.1
-0.9	-0.3	-0.2	-0.3	-0.3	-0.3	-0.1	0.5	0.7	0.4	0.3	-0.7	-1.1	-0.8	-0.1	-0.3	-0.4	-0.4	-0.1	-0.5	-0.6	-0.9	-2.2	-6.5	-5.5	-4.8	-8.5	-7.3	-10.3	-12.5	-5.1	-4.4	-3.2	-2.6	-1.4	0.2
-0.8	-0.8	-0.3	-0.5	-0.3	-0.1	-0.8	0.1	-0.5	-0.7	-0.5	-0.7	-0.6	-0.9	-0.5	-0.8	-1.5	-1.3	-1.4	-2.4	-3.2	-2.9	-2.1	-1.2	-0.7	-1.6	-2.6	-2.8	-3.9	-4.1	-2.7	-2.3	-1.4	-1.9	-0.8	0.4
-1.5	-1.8	-1.7	-0.4	-1.6	-1.4	-0.7	-0.4	-1.5	-1.6	-1.1	-1.3	-0.3	-2.1	-2.3	-3.0	-3.8	-3.7	-3.4	-3.1	-3.1	-2.8	-3.1	-2.9	-2.6	-2.2	-2.0	-2.0	-2.1	-1.4	-1.5	-1.7	-2.0	-1.8	-3.6	-2.3
													-9.1	-6.5	-6.3	-6.0	-5.5	-5.5	-5.2	-5.6	-4.7	-3.9	-3.8	-3.7	-3.7	-3.0	-2.6	-2.0							
-1.2	-0.1	-0.8	-0.5	-1.6	-1.9	-3.0	-0.7	0.2	-1.0	0.0	-0.8	-2.1	-0.3	-0.7	-1.1	-2.1	-2.4	-3.2	-3.2	-2.2	-0.4	0.3	-1.3	0.1	-1.8	-1.2	1.1	-1.4	-0.8	0.4	0.5	0.3	-1.9	-0.8	-6.6
-2.2	-1.2	-0.8	0.0	0.1	-0.1	-0.1	0.3	0.2	0.1	-0.4	-0.6	-0.5	-0.7	-0.9	0.2	0.5	0.2	0.0	-0.4	-0.2	0.0	-0.1	-0.1	-0.2	-0.3	-0.2	-0.2	-0.4	-0.3	0.1	-0.0	-0.1	-0.4	-0.5	-1.1
-1.1	-0.9	-0.1	0.0	0.2	0.0	-0.0	0.2	-0.1	-0.2	0.1	-0.3	-0.0	-0.3	-0.2	0.3	0.9	0.4	0.3	0.2	0.6	0.7	0.5	0.2	-0.2	-0.5	-0.5	-0.3	-0.1	0.1	0.2	0.0	-0.2	-0.4	-0.6	-0.9

Figure 24. SATOB 101 - 400 hPa mean RMS O-B vector differences (ms-1). JUNE 2005

All observations

Values are plotted where greater than 10 obs are present



3.4			3.4	3.5	4.3	3.9	5.0	3.9	4.7	5.0	4.6	4.6	4.8	4.5	4.3	4.1	3.6	3.8	4.4	4.1	3.8	4.2	3.8	4.8	4.2	5.1	4.6	4.9	4.5	4.9	5.6	5.1	4.3	3.6	3.9
4.8	5.1	5.0	4.9	4.4	5.0	4.3	4.6	4.8	5.0	5.4	5.0	4.8	4.3	4.3	4.2	4.5	4.5	4.6	4.3	4.2	4.4	4.9	5.5	5.6	6.0	5.9	5.3	4.8	4.9	4.6	5.2	4.8	4.9	4.4	4.8
5.1	5.3	4.5	4.5	5.4	5.9	5.3	4.8	4.8	5.0	5.3	4.7	5.3	5.5	5.0	4.3	5.1	5.3	5.1	4.4	4.1	5.1	5.2	5.8	6.2	6.2	4.9	5.8	5.4	5.3	5.1	5.0	6.2	5.8	5.2	4.6
5.1	5.8	5.2	5.0	5.0	5.3	5.5	5.8	5.6	5.3	5.2	5.4	5.1	5.2	7.8	7.9	7.9	7.4	6.7	6.8	7.0	6.2	6.4	6.6	6.9	6.5	7.4	7.4	6.2							
6.4	5.8	4.9	5.0	4.9	5.0	5.2	5.5	5.8	5.2	4.8	4.9	5.1	6.3	6.9	7.0	6.3	6.3	5.9	6.0	7.0	7.0	7.7	7.5	7.2	8.7	8.6	7.7	7.7	7.8	6.5	6.4	6.7	7.7	7.0	7.4
5.5	5.2	4.3	3.9	4.6	4.2	5.1	5.6	5.8	5.2	5.0	4.8	5.0	5.1	4.9	5.0	5.3	5.6	6.2	6.7	7.2	9.3	12.2	11.6	8.2	8.3	9.0	9.1	8.1	7.5	6.9	6.9	6.4	6.2	6.1	6.5
5.1	4.5	4.1	4.1	4.6	5.2	5.5	5.6	5.0	5.4	5.0	4.7	5.0	5.3	5.4	6.1	7.8	7.6	7.9	7.7	8.7	8.7	7.9	6.9	7.2	7.5	7.0	5.2	5.2	5.7	5.4	5.2	5.1	4.6	4.6	5.9
5.3	5.3	5.2	4.8	5.5	5.2	5.5	5.5	5.2	5.2	5.6	5.1	5.1	5.2	5.8	6.9	7.6	7.8	7.6	8.1	8.1	7.9	8.9	8.6	8.5	8.5	10.0	8.3	8.0	7.2	6.2	4.6	4.8	4.8	5.4	5.9
5.8	6.7	6.4	5.4	5.8	5.8	5.9	5.8	5.7	5.9	5.6	5.6	5.2	4.9	5.3	6.0	6.8	7.0	6.8	7.1	7.8	9.8	12.0	10.3	9.0	10.5	10.7	7.9	7.3	6.5	5.6	4.0	3.8	3.8	4.2	4.6
5.0	5.9	5.5	5.1	4.9	4.9	6.4	5.9	6.9	7.0	6.0	5.9	5.9	6.6	8.1	10.7	10.5	9.4	7.7	6.9	7.7	11.0	12.5	9.7	8.7	8.2	7.6	7.2	6.3	6.0	5.8	3.8	3.8	4.1	4.5	4.2
5.7	5.5	5.1	4.8	5.0	5.2	5.9	7.9	9.3	8.0	6.2	6.1	7.7	7.9	7.7	8.7	10.0	10.8	11.7	12.5	14.2	15.9	14.0	12.5	9.6	8.9	9.4	8.3	8.0	8.5	9.0	6.8	6.5	6.0	6.2	5.7
6.7	6.1	6.3	6.3	6.2	6.0	6.5	6.7	6.6	6.1	5.8	5.9	8.3	7.7	7.2	7.5	8.8	10.2	10.4	10.8	12.6	13.9	13.3	13.8	13.2	15.6	19.4	23.2	27.7	23.9	11.3	10.3	9.8	9.5	8.0	7.4
6.6	6.7	6.4	6.2	6.8	6.4	7.1	7.4	7.2	6.8	6.5	6.2	7.0	7.5	7.0	7.3	8.3	8.7	9.1	10.2	11.2	10.2	9.1	8.0	7.3	9.0	10.0	11.1	12.0	11.3	7.2	6.6	6.1	6.9	6.8	6.8
6.2	6.4	6.1	5.6	5.6	6.4	5.9	5.6	5.8	7.1	6.8	7.1	7.0	9.6	9.7	10.6	12.2	12.5	12.0	10.7	10.1	9.7	9.9	10.5	10.0	9.2	9.5	9.3	9.6	8.5	5.5	6.0	5.6	6.1	7.6	6.4
													14.4	14.8	14.1	13.8	13.6	13.7	13.8	14.3	12.6	10.7	11.2	11.2	10.7	9.6	9.0	9.3							
5.1	5.3	5.8	5.6	5.8	6.1	6.6	4.7	5.5	4.9	5.0	5.3	6.0	5.4	4.8	4.9	7.3	7.9	7.8	6.3	7.6	5.6	5.6	5.3	5.1	5.5	5.0	5.8	6.2	5.4	5.0	5.1	5.6	5.4	6.8	8.7
5.8	6.0	5.6	5.4	5.3	5.4	4.9	4.8	5.1	4.8	4.5	4.6	5.0	5.0	5.0	4.6	4.9	4.7	4.6	4.6	4.7	4.5	4.4	4.3	4.4	4.5	4.5	4.5	4.5	4.6	4.5	4.6	4.5	4.9	5.0	5.3
5.1	4.9	4.8	4.8	4.8	4.8	4.9	4.9	4.6	4.6	4.6	4.6	4.6	4.7	4.9	4.8	4.7	4.4	4.2	4.1	4.1	4.1	4.1	4.0	4.3	4.4	4.5	4.5	4.5	4.5	4.6	4.6	4.7	5.0	5.0	5.0

MONITORING OF SATELLITE TEMPERATURES

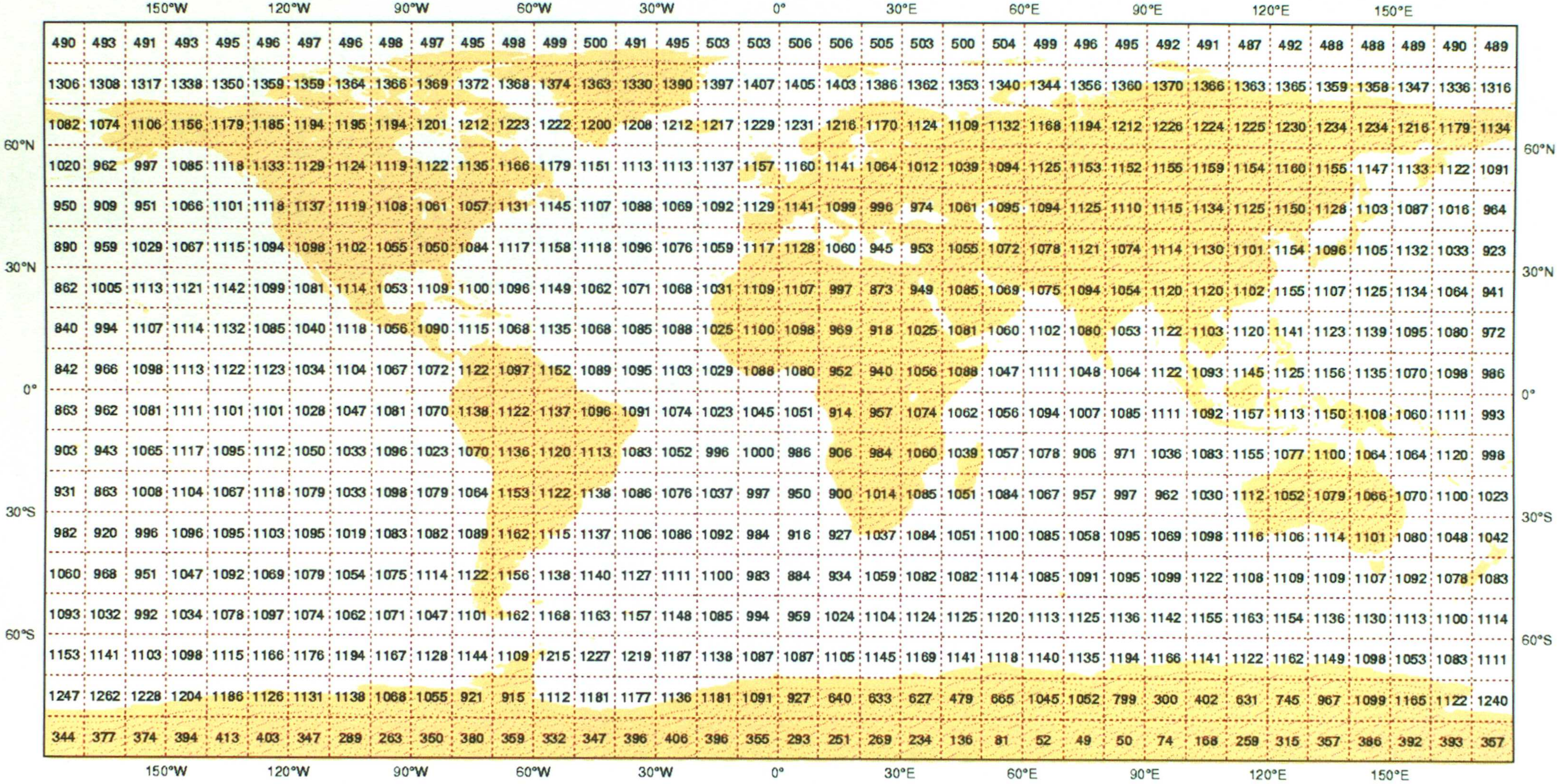
MONITORING CENTRE: EXETER

MONTH: June 2005

Monitoring procedures

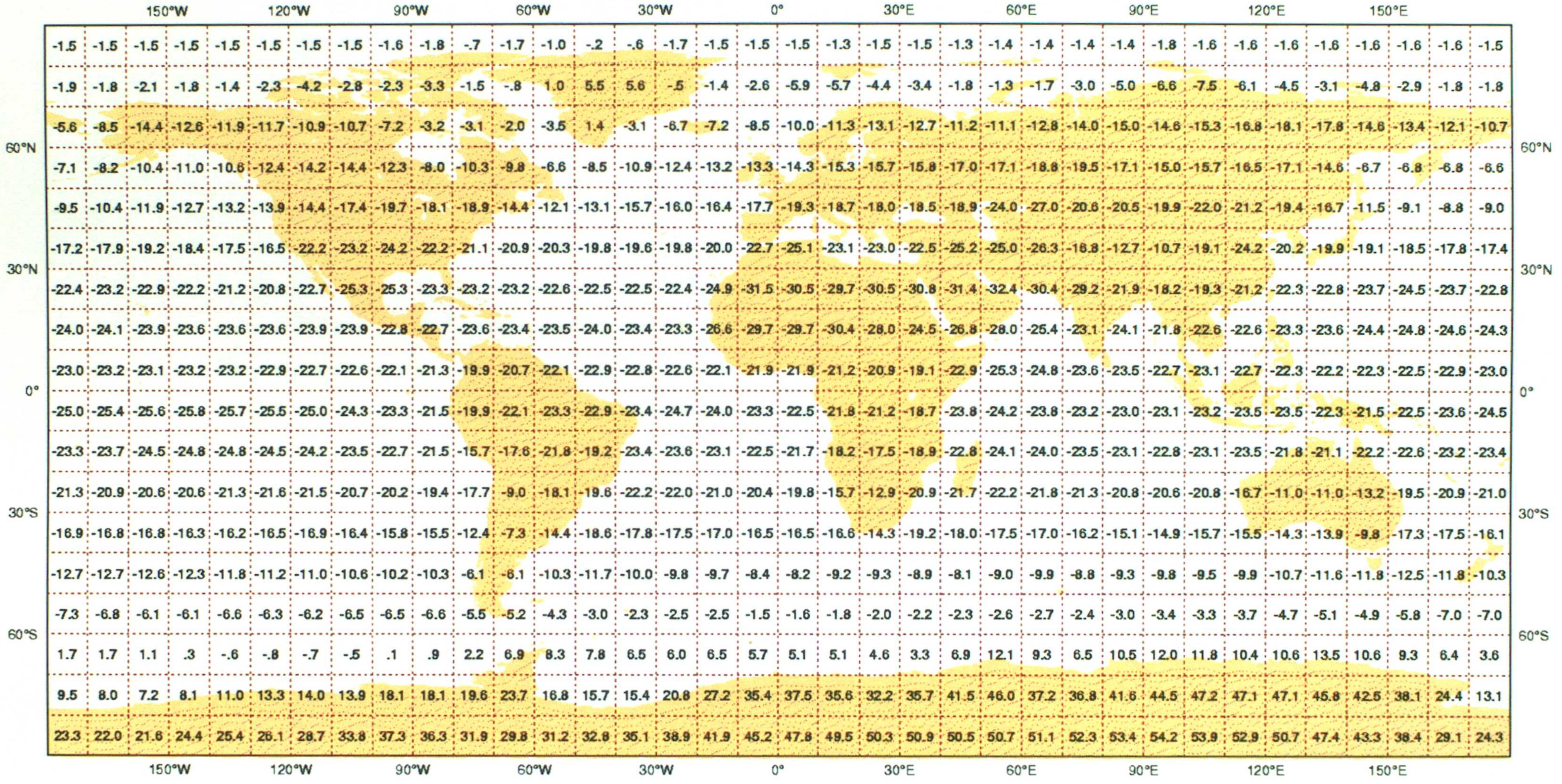
Period	:One calendar month.
Data monitored	:Reports from NOAA-15, NOAA-16 and NOAA-17.
Standard of comparison	:Background field from UKMO global model.
Selection Criteria	:All soundings.
Data Extracted	:Sounding channels (and approximate weighting function peaks, hPa) HIRS8 (Surface) HIRS15 (700) HIRS11 (500-700) HIRS4 (400) AMSUA5 (700) AMSUA7 (300) AMSUA9 (100) :Mean and standard deviation observation-minus-background brightness temperature differences

Figure 25. ATOVS mean daily count. JUNE 2005
NOAA15, using all observations
Global average number of observations in 24 hours = 659857



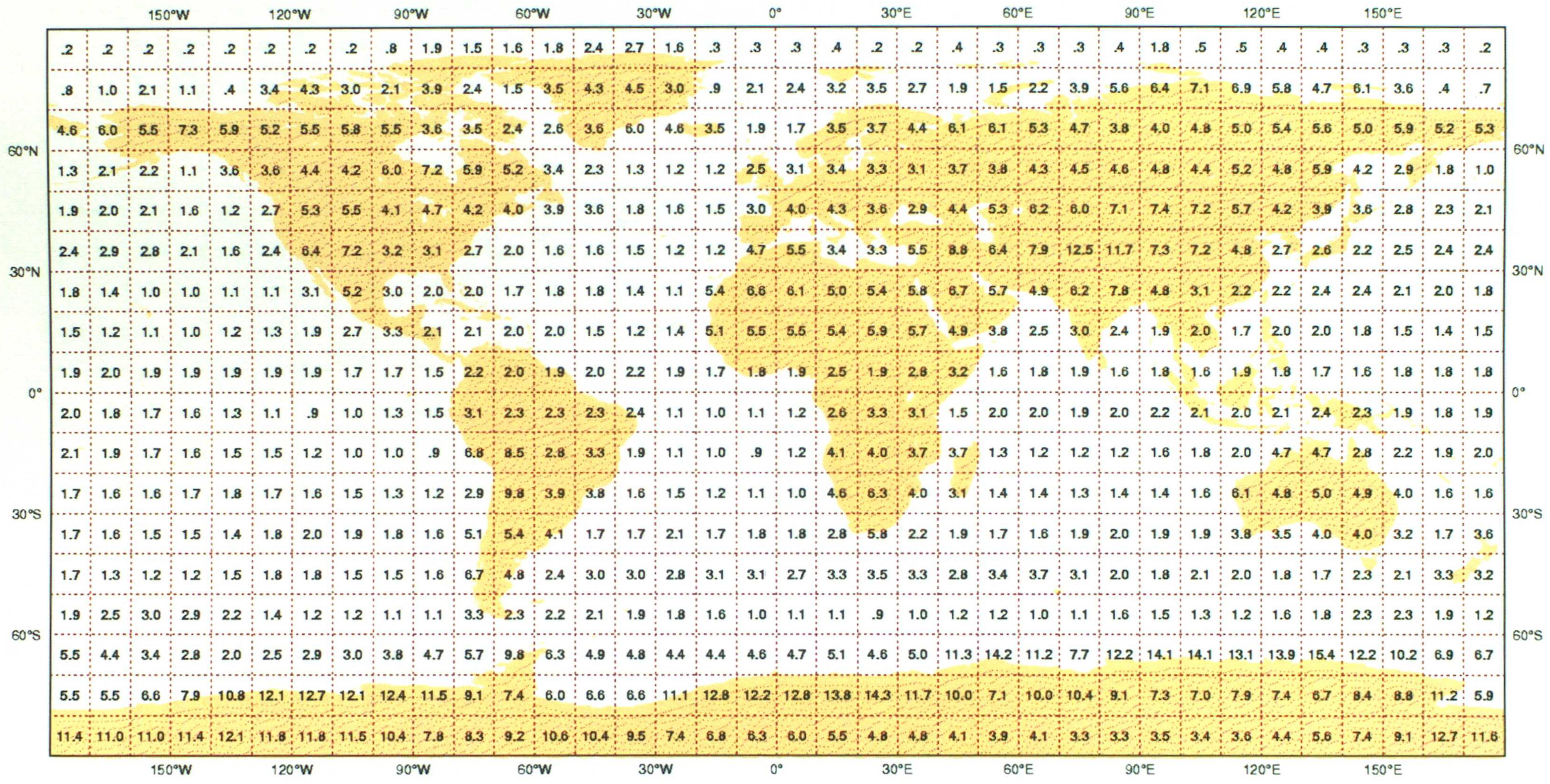
490	493	491	493	495	496	497	496	498	497	495	498	499	500	491	495	503	503	506	506	505	503	500	504	499	496	495	492	491	487	492	488	488	489	490	489
1306	1308	1317	1338	1350	1359	1359	1364	1366	1369	1372	1368	1374	1363	1330	1390	1397	1407	1405	1403	1386	1362	1353	1340	1344	1356	1360	1370	1366	1363	1365	1359	1358	1347	1336	1316
1082	1074	1106	1156	1179	1185	1194	1195	1194	1201	1212	1223	1222	1200	1208	1212	1217	1229	1231	1216	1170	1124	1109	1132	1168	1194	1212	1226	1224	1225	1230	1234	1234	1216	1179	1134
1020	962	997	1085	1118	1133	1129	1124	1119	1122	1135	1166	1179	1151	1113	1113	1137	1157	1160	1141	1064	1012	1039	1094	1125	1153	1152	1155	1159	1154	1160	1155	1147	1133	1122	1091
950	909	951	1066	1101	1118	1137	1119	1108	1061	1057	1131	1145	1107	1088	1069	1092	1129	1141	1099	996	974	1061	1095	1094	1125	1110	1115	1134	1125	1150	1128	1103	1087	1016	964
890	959	1029	1067	1115	1094	1098	1102	1055	1050	1084	1117	1158	1118	1096	1076	1059	1117	1128	1060	945	953	1055	1072	1078	1121	1074	1114	1130	1101	1154	1096	1105	1132	1033	923
862	1005	1113	1121	1142	1099	1081	1114	1053	1109	1100	1096	1149	1062	1071	1068	1031	1109	1107	997	873	949	1085	1069	1075	1094	1054	1120	1120	1102	1155	1107	1125	1134	1064	941
840	994	1107	1114	1132	1085	1040	1118	1056	1090	1115	1068	1135	1068	1085	1088	1025	1100	1098	969	918	1025	1081	1060	1102	1080	1053	1122	1103	1120	1141	1123	1139	1095	1080	972
842	966	1098	1113	1122	1123	1034	1104	1067	1072	1122	1097	1152	1089	1095	1103	1029	1088	1080	952	940	1056	1088	1047	1111	1048	1064	1122	1093	1145	1125	1156	1135	1070	1098	986
863	962	1081	1111	1101	1101	1028	1047	1081	1070	1138	1122	1137	1096	1091	1074	1023	1045	1051	914	957	1074	1062	1056	1094	1007	1085	1111	1092	1157	1113	1150	1108	1060	1111	993
903	943	1065	1117	1095	1112	1050	1033	1096	1023	1070	1136	1120	1113	1083	1052	996	1000	986	906	984	1060	1039	1057	1078	906	971	1036	1083	1155	1077	1100	1064	1064	1120	998
931	863	1008	1104	1067	1118	1079	1033	1098	1079	1064	1153	1122	1138	1086	1076	1037	997	950	900	1014	1085	1051	1084	1067	957	997	962	1030	1112	1052	1079	1066	1070	1100	1023
982	920	996	1096	1095	1103	1095	1019	1083	1082	1089	1162	1115	1137	1106	1086	1092	984	916	927	1037	1084	1051	1100	1085	1058	1095	1069	1098	1116	1106	1114	1101	1080	1048	1042
1060	968	951	1047	1092	1069	1079	1054	1075	1114	1122	1156	1138	1140	1127	1111	1100	983	884	934	1059	1082	1082	1114	1085	1091	1095	1099	1122	1108	1109	1109	1107	1092	1078	1083
1093	1032	992	1034	1078	1097	1074	1062	1071	1047	1101	1162	1168	1163	1157	1148	1085	994	959	1024	1104	1124	1125	1120	1113	1125	1136	1142	1155	1163	1154	1136	1130	1113	1100	1114
1153	1141	1103	1098	1115	1166	1176	1194	1167	1128	1144	1109	1215	1227	1219	1187	1138	1087	1087	1105	1145	1169	1141	1118	1140	1135	1194	1166	1141	1122	1162	1149	1098	1053	1083	1111
1247	1262	1228	1204	1186	1126	1131	1138	1068	1055	921	915	1112	1181	1177	1136	1181	1091	927	640	633	627	479	665	1045	1052	799	300	402	631	745	967	1099	1165	1122	1240
344	377	374	394	413	403	347	289	263	350	380	359	332	347	396	406	396	355	293	251	269	234	136	81	52	49	50	74	168	259	315	357	386	392	393	357

Figure 26. ATOVS MEAN O-B brightness temperature differences (deg C). JUNE 2005
Channel: HIRS8 (Surface)
NOAA15, using all observations



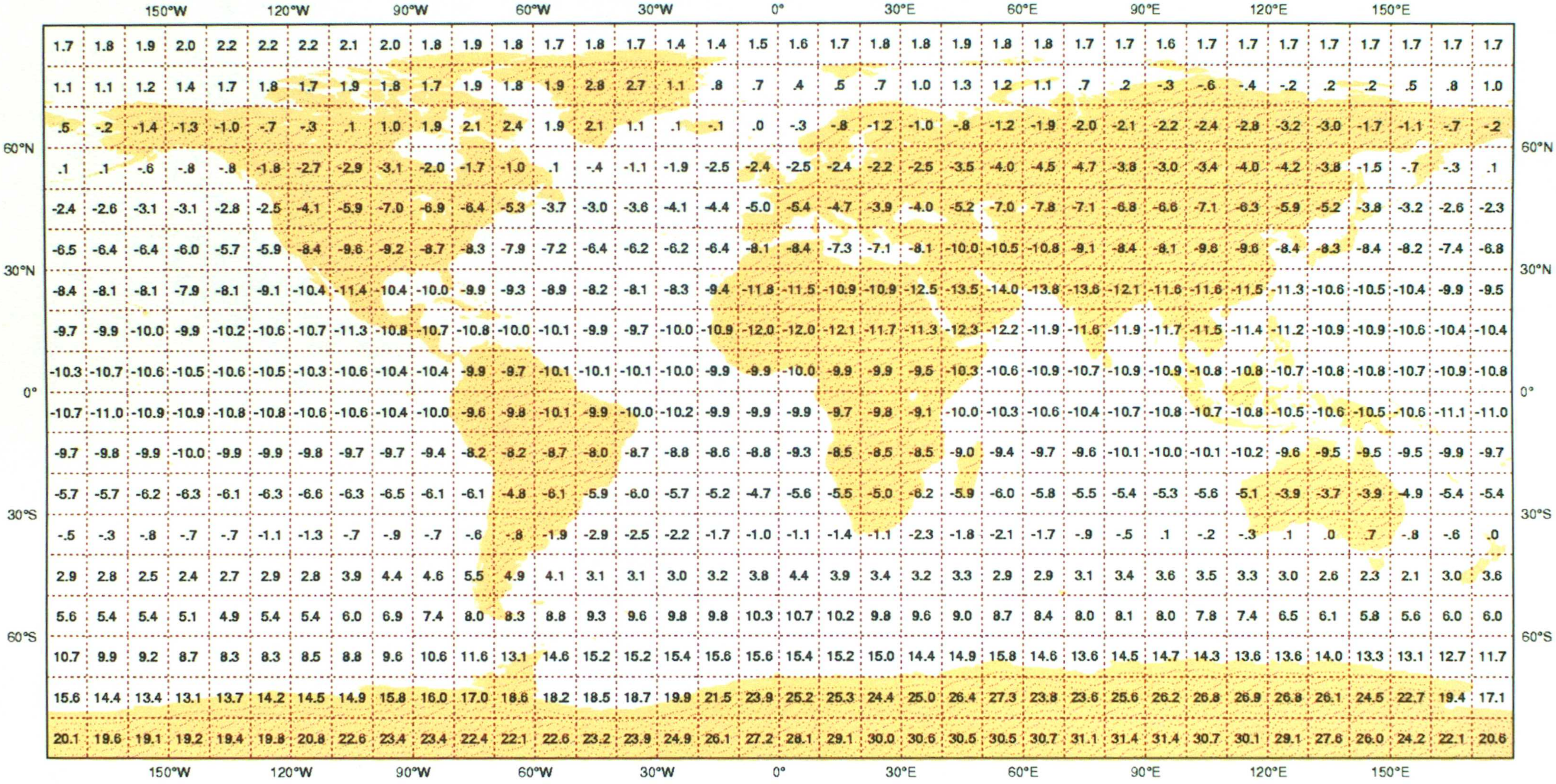
-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5	-1.6	-1.8	-.7	-1.7	-1.0	-.2	-.6	-1.7	-1.5	-1.5	-1.5	-1.3	-1.5	-1.5	-1.3	-1.4	-1.4	-1.4	-1.4	-1.8	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.6	-1.5
-1.9	-1.8	-2.1	-1.8	-1.4	-2.3	-4.2	-2.8	-2.3	-3.3	-1.5	-.8	1.0	5.5	5.6	-.5	-1.4	-2.6	-5.9	-5.7	-4.4	-3.4	-1.8	-1.3	-1.7	-3.0	-5.0	-6.6	-7.5	-6.1	-4.5	-3.1	-4.8	-2.9	-1.8	-1.8
-5.6	-8.5	-14.4	-12.6	-11.9	-11.7	-10.9	-10.7	-7.2	-3.2	-3.1	-2.0	-3.5	1.4	-3.1	-6.7	-7.2	-8.5	-10.0	-11.3	-13.1	-12.7	-11.2	-11.1	-12.8	-14.0	-15.0	-14.6	-15.3	-16.8	-18.1	-17.8	-14.6	-13.4	-12.1	-10.7
-7.1	-8.2	-10.4	-11.0	-10.6	-12.4	-14.2	-14.4	-12.3	-8.0	-10.3	-9.8	-6.6	-8.5	-10.9	-12.4	-13.2	-13.3	-14.3	-15.3	-15.7	-15.8	-17.0	-17.1	-18.8	-19.5	-17.1	-15.0	-15.7	-16.5	-17.1	-14.6	-6.7	-6.8	-6.8	-6.6
-9.5	-10.4	-11.9	-12.7	-13.2	-13.9	-14.4	-17.4	-19.7	-18.1	-18.9	-14.4	-12.1	-13.1	-15.7	-16.0	-16.4	-17.7	-19.3	-18.7	-18.0	-18.5	-18.9	-24.0	-27.0	-20.6	-20.5	-19.9	-22.0	-21.2	-19.4	-16.7	-11.5	-9.1	-8.8	-9.0
-17.2	-17.9	-19.2	-18.4	-17.5	-16.5	-22.2	-23.2	-24.2	-22.2	-21.1	-20.9	-20.3	-19.8	-19.6	-19.8	-20.0	-22.7	-25.1	-23.1	-23.0	-22.5	-25.2	-25.0	-26.3	-16.8	-12.7	-10.7	-19.1	-24.2	-20.2	-19.9	-19.1	-18.5	-17.8	-17.4
-22.4	-23.2	-22.9	-22.2	-21.2	-20.8	-22.7	-25.3	-25.3	-23.3	-23.2	-23.2	-22.6	-22.5	-22.5	-22.4	-24.9	-31.5	-30.5	-29.7	-30.5	-30.8	-31.4	-32.4	-30.4	-29.2	-21.9	-18.2	-19.3	-21.2	-22.3	-22.8	-23.7	-24.5	-23.7	-22.8
-24.0	-24.1	-23.9	-23.6	-23.6	-23.6	-23.9	-23.9	-22.8	-22.7	-23.6	-23.4	-23.5	-24.0	-23.4	-23.3	-26.6	-29.7	-29.7	-30.4	-28.0	-24.5	-26.8	-28.0	-25.4	-23.1	-24.1	-21.8	-22.6	-22.6	-23.3	-23.6	-24.4	-24.8	-24.6	-24.3
-23.0	-23.2	-23.1	-23.2	-23.2	-22.9	-22.7	-22.6	-22.1	-21.3	-19.9	-20.7	-22.1	-22.9	-22.8	-22.6	-22.1	-21.9	-21.9	-21.2	-20.9	-19.1	-22.9	-25.3	-24.8	-23.6	-23.5	-22.7	-23.1	-22.7	-22.3	-22.2	-22.3	-22.5	-22.9	-23.0
-25.0	-25.4	-25.6	-25.8	-25.7	-25.5	-25.0	-24.3	-23.3	-21.5	-19.9	-22.1	-23.3	-22.9	-23.4	-24.7	-24.0	-23.3	-22.5	-21.8	-21.2	-18.7	-23.8	-24.2	-23.8	-23.2	-23.0	-23.1	-23.2	-23.5	-23.5	-22.3	-21.5	-22.5	-23.6	-24.5
-23.3	-23.7	-24.5	-24.8	-24.8	-24.5	-24.2	-23.5	-22.7	-21.5	-15.7	-17.6	-21.8	-19.2	-23.4	-23.6	-23.1	-22.5	-21.7	-18.2	-17.5	-18.9	-22.8	-24.1	-24.0	-23.5	-23.1	-22.8	-23.1	-23.5	-21.8	-21.1	-22.2	-22.6	-23.2	-23.4
-21.3	-20.9	-20.6	-20.6	-21.3	-21.6	-21.5	-20.7	-20.2	-19.4	-17.7	-9.0	-18.1	-19.6	-22.2	-22.0	-21.0	-20.4	-19.8	-15.7	-12.9	-20.9	-21.7	-22.2	-21.8	-21.3	-20.8	-20.6	-20.8	-16.7	-11.0	-11.0	-13.2	-19.5	-20.9	-21.0
-16.9	-16.8	-16.8	-16.3	-16.2	-16.5	-16.9	-16.4	-15.8	-15.5	-12.4	-7.3	-14.4	-18.6	-17.8	-17.5	-17.0	-16.5	-16.5	-16.6	-14.3	-19.2	-18.0	-17.5	-17.0	-16.2	-15.1	-14.9	-15.7	-15.5	-14.3	-13.9	-9.8	-17.3	-17.5	-16.1
-12.7	-12.7	-12.6	-12.3	-11.8	-11.2	-11.0	-10.6	-10.2	-10.3	-6.1	-6.1	-10.3	-11.7	-10.0	-9.8	-9.7	-8.4	-8.2	-9.2	-9.3	-8.9	-8.1	-9.0	-9.9	-8.8	-9.3	-9.8	-9.5	-9.9	-10.7	-11.6	-11.8	-12.5	-11.8	-10.3
-7.3	-6.8	-6.1	-6.1	-6.6	-6.3	-6.2	-6.5	-6.5	-6.6	-5.5	-5.2	-4.3	-3.0	-2.3	-2.5	-2.5	-1.5	-1.6	-1.8	-2.0	-2.2	-2.3	-2.6	-2.7	-2.4	-3.0	-3.4	-3.3	-3.7	-4.7	-5.1	-4.9	-5.8	-7.0	-7.0
1.7	1.7	1.1	.3	-.6	-.8	-.7	-.5	.1	.9	2.2	6.9	8.3	7.8	6.5	6.0	6.5	5.7	5.1	5.1	4.6	3.3	6.9	12.1	9.3	6.5	10.5	12.0	11.8	10.4	10.6	13.5	10.6	9.3	6.4	3.6
9.5	8.0	7.2	8.1	11.0	13.3	14.0	13.9	18.1	18.1	19.6	23.7	16.8	15.7	15.4	20.8	27.2	35.4	37.5	35.6	32.2	35.7	41.5	46.0	37.2	36.8	41.6	44.5	47.2	47.1	47.1	45.8	42.5	38.1	24.4	13.1
23.3	22.0	21.6	24.4	25.4	26.1	28.7	33.8	37.3	36.3	31.9	29.8	31.2	32.8	35.1	38.9	41.9	45.2	47.8	49.5	50.3	50.9	50.5	50.7	51.1	52.3	53.4	54.2	53.9	52.9	50.7	47.4	43.3	38.4	29.1	24.3

Figure 27. ATOVS SD O-B brightness temperature differences (deg C). JUNE 2005
Channel: HIRS8 (Surface)
NOAA15, using all observations



.2	.2	.2	.2	.2	.2	.2	.2	.8	1.9	1.5	1.6	1.8	2.4	2.7	1.6	.3	.3	.3	.4	.2	.2	.4	.3	.3	.3	.4	1.8	.5	.5	.4	.4	.3	.3	.3	.2
.8	1.0	2.1	1.1	.4	3.4	4.3	3.0	2.1	3.9	2.4	1.5	3.5	4.3	4.5	3.0	.9	2.1	2.4	3.2	3.5	2.7	1.9	1.5	2.2	3.9	5.6	6.4	7.1	6.9	5.8	4.7	6.1	3.6	.4	.7
4.6	6.0	5.5	7.3	5.9	5.2	5.5	5.8	5.5	3.6	3.5	2.4	2.6	3.6	6.0	4.6	3.5	1.9	1.7	3.5	3.7	4.4	6.1	6.1	5.3	4.7	3.8	4.0	4.8	5.0	5.4	5.6	5.0	5.9	5.2	5.3
1.3	2.1	2.2	1.1	3.6	3.6	4.4	4.2	6.0	7.2	5.9	5.2	3.4	2.3	1.3	1.2	1.2	2.5	3.1	3.4	3.3	3.1	3.7	3.8	4.3	4.5	4.6	4.8	4.4	5.2	4.8	5.9	4.2	2.9	1.8	1.0
1.9	2.0	2.1	1.6	1.2	2.7	5.3	5.5	4.1	4.7	4.2	4.0	3.9	3.6	1.8	1.6	1.5	3.0	4.0	4.3	3.6	2.9	4.4	5.3	6.2	6.0	7.1	7.4	7.2	5.7	4.2	3.9	3.6	2.8	2.3	2.1
2.4	2.9	2.8	2.1	1.6	2.4	6.4	7.2	3.2	3.1	2.7	2.0	1.6	1.6	1.5	1.2	1.2	4.7	5.5	3.4	3.3	5.5	8.8	6.4	7.9	12.5	11.7	7.3	7.2	4.8	2.7	2.6	2.2	2.5	2.4	2.4
1.8	1.4	1.0	1.0	1.1	1.1	3.1	5.2	3.0	2.0	2.0	1.7	1.8	1.8	1.4	1.1	5.4	6.6	6.1	5.0	5.4	5.8	6.7	5.7	4.9	6.2	7.8	4.8	3.1	2.2	2.2	2.4	2.4	2.1	2.0	1.8
1.5	1.2	1.1	1.0	1.2	1.3	1.9	2.7	3.3	2.1	2.1	2.0	2.0	1.5	1.2	1.4	5.1	5.5	5.5	5.4	5.9	5.7	4.9	3.8	2.5	3.0	2.4	1.9	2.0	1.7	2.0	2.0	1.8	1.5	1.4	1.5
1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.7	1.7	1.5	2.2	2.0	1.9	2.0	2.2	1.9	1.7	1.8	1.9	2.5	1.9	2.8	3.2	1.6	1.8	1.9	1.6	1.8	1.6	1.9	1.8	1.7	1.6	1.8	1.8	1.8
2.0	1.8	1.7	1.6	1.3	1.1	.9	1.0	1.3	1.5	3.1	2.3	2.3	2.3	2.4	1.1	1.0	1.1	1.2	2.6	3.3	3.1	1.5	2.0	2.0	1.9	2.0	2.2	2.1	2.0	2.1	2.4	2.3	1.9	1.8	1.9
2.1	1.9	1.7	1.6	1.5	1.5	1.2	1.0	1.0	.9	6.8	8.5	2.8	3.3	1.9	1.1	1.0	.9	1.2	4.1	4.0	3.7	3.7	1.3	1.2	1.2	1.2	1.6	1.8	2.0	4.7	4.7	2.8	2.2	1.9	2.0
1.7	1.6	1.6	1.7	1.8	1.7	1.6	1.5	1.3	1.2	2.9	9.8	3.9	3.8	1.6	1.5	1.2	1.1	1.0	4.6	6.3	4.0	3.1	1.4	1.4	1.3	1.4	1.4	1.6	6.1	4.8	5.0	4.9	4.0	1.6	1.6
1.7	1.6	1.5	1.5	1.4	1.8	2.0	1.9	1.8	1.6	5.1	5.4	4.1	1.7	1.7	2.1	1.7	1.8	1.8	2.8	5.8	2.2	1.9	1.7	1.6	1.9	2.0	1.9	1.9	3.8	3.5	4.0	4.0	3.2	1.7	3.6
1.7	1.3	1.2	1.2	1.5	1.8	1.8	1.5	1.5	1.6	6.7	4.8	2.4	3.0	3.0	2.8	3.1	3.1	2.7	3.3	3.5	3.3	2.8	3.4	3.7	3.1	2.0	1.8	2.1	2.0	1.8	1.7	2.3	2.1	3.3	3.2
1.9	2.5	3.0	2.9	2.2	1.4	1.2	1.2	1.1	1.1	3.3	2.3	2.2	2.1	1.9	1.8	1.6	1.0	1.1	1.1	.9	1.0	1.2	1.2	1.0	1.1	1.6	1.5	1.3	1.2	1.6	1.8	2.3	2.3	1.9	1.2
5.5	4.4	3.4	2.8	2.0	2.5	2.9	3.0	3.8	4.7	5.7	9.8	6.3	4.9	4.8	4.4	4.4	4.6	4.7	5.1	4.6	5.0	11.3	14.2	11.2	7.7	12.2	14.1	14.1	13.1	13.9	15.4	12.2	10.2	6.9	6.7
5.5	5.5	6.6	7.9	10.8	12.1	12.7	12.1	12.4	11.5	9.1	7.4	6.0	6.6	6.6	11.1	12.8	12.2	12.8	13.8	14.3	11.7	10.0	7.1	10.0	10.4	9.1	7.3	7.0	7.9	7.4	6.7	8.4	8.8	11.2	5.9
11.4	11.0	11.0	11.4	12.1	11.8	11.8	11.5	10.4	7.8	8.3	9.2	10.6	10.4	9.5	7.4	6.8	6.3	6.0	5.5	4.8	4.8	4.1	3.9	4.1	3.3	3.3	3.5	3.4	3.6	4.4	5.6	7.4	9.1	12.7	11.6

Figure 28. ATOVS MEAN O-B brightness temperature differences (deg C). JUNE 2005
Channel: HIRS15 (700 hPa)
NOAA15, using all observations



1.7	1.8	1.9	2.0	2.2	2.2	2.2	2.1	2.0	1.8	1.9	1.8	1.7	1.8	1.7	1.4	1.4	1.5	1.6	1.7	1.8	1.8	1.9	1.8	1.8	1.7	1.7	1.6	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
1.1	1.1	1.2	1.4	1.7	1.8	1.7	1.9	1.8	1.7	1.9	1.8	1.9	2.8	2.7	1.1	.8	.7	.4	.5	.7	1.0	1.3	1.2	1.1	.7	.2	-.3	-.6	-.4	-.2	.2	.2	.5	.8	1.0
.5	-.2	-1.4	-1.3	-1.0	-.7	-.3	.1	1.0	1.9	2.1	2.4	1.9	2.1	1.1	.1	-.1	.0	-.3	-.8	-1.2	-1.0	-.8	-1.2	-1.9	-2.0	-2.1	-2.2	-2.4	-2.8	-3.2	-3.0	-1.7	-1.1	-.7	-.2
.1	.1	-.6	-.8	-.8	-1.8	-2.7	-2.9	-3.1	-2.0	-1.7	-1.0	.1	-.4	-1.1	-1.9	-2.5	-2.4	-2.5	-2.4	-2.2	-2.5	-3.5	-4.0	-4.5	-4.7	-3.8	-3.0	-3.4	-4.0	-4.2	-3.8	-1.5	-.7	-.3	.1
-2.4	-2.6	-3.1	-3.1	-2.8	-2.5	-4.1	-5.9	-7.0	-6.9	-6.4	-5.3	-3.7	-3.0	-3.6	-4.1	-4.4	-5.0	-5.4	-4.7	-3.9	-4.0	-5.2	-7.0	-7.8	-7.1	-6.8	-6.6	-7.1	-6.3	-5.9	-5.2	-3.8	-3.2	-2.6	-2.3
-6.5	-6.4	-6.4	-6.0	-5.7	-5.9	-8.4	-9.6	-9.2	-8.7	-8.3	-7.9	-7.2	-6.4	-6.2	-6.2	-6.4	-8.1	-8.4	-7.3	-7.1	-8.1	-10.0	-10.5	-10.8	-9.1	-8.4	-8.1	-9.6	-9.6	-8.4	-8.3	-8.4	-8.2	-7.4	-6.8
-8.4	-8.1	-8.1	-7.9	-8.1	-9.1	-10.4	-11.4	-10.4	-10.0	-9.9	-9.3	-8.9	-8.2	-8.1	-8.3	-9.4	-11.8	-11.5	-10.9	-10.9	-12.5	-13.5	-14.0	-13.8	-13.6	-12.1	-11.6	-11.6	-11.5	-11.3	-10.6	-10.5	-10.4	-9.9	-9.5
-9.7	-9.9	-10.0	-9.9	-10.2	-10.6	-10.7	-11.3	-10.8	-10.7	-10.8	-10.0	-10.1	-9.9	-9.7	-10.0	-10.9	-12.0	-12.0	-12.1	-11.7	-11.3	-12.3	-12.2	-11.9	-11.6	-11.9	-11.7	-11.5	-11.4	-11.2	-10.9	-10.9	-10.6	-10.4	-10.4
-10.3	-10.7	-10.6	-10.5	-10.6	-10.5	-10.3	-10.6	-10.4	-10.4	-9.9	-9.7	-10.1	-10.1	-10.1	-10.0	-9.9	-9.9	-10.0	-9.9	-9.9	-9.5	-10.3	-10.6	-10.9	-10.7	-10.9	-10.9	-10.8	-10.8	-10.7	-10.8	-10.8	-10.7	-10.9	-10.8
-10.7	-11.0	-10.9	-10.9	-10.8	-10.8	-10.6	-10.6	-10.4	-10.0	-9.6	-9.8	-10.1	-9.9	-10.0	-10.2	-9.9	-9.9	-9.9	-9.7	-9.8	-9.1	-10.0	-10.3	-10.6	-10.4	-10.7	-10.8	-10.7	-10.8	-10.5	-10.6	-10.5	-10.6	-11.1	-11.0
-9.7	-9.8	-9.9	-10.0	-9.9	-9.9	-9.8	-9.7	-9.7	-9.4	-8.2	-8.2	-8.7	-8.0	-8.7	-8.8	-8.6	-8.8	-9.3	-8.5	-8.5	-8.5	-9.0	-9.4	-9.7	-9.6	-10.1	-10.0	-10.1	-10.2	-9.6	-9.5	-9.5	-9.5	-9.9	-9.7
-5.7	-5.7	-6.2	-6.3	-6.1	-6.3	-6.6	-6.3	-6.5	-6.1	-6.1	-4.8	-6.1	-5.9	-6.0	-5.7	-5.2	-4.7	-5.6	-5.5	-5.0	-6.2	-5.9	-6.0	-5.8	-5.5	-5.4	-5.3	-5.6	-5.1	-3.9	-3.7	-3.9	-4.9	-5.4	-5.4
-.5	-.3	-.8	-.7	-.7	-1.1	-1.3	-.7	-.9	-.7	-.6	-.8	-1.9	-2.9	-2.5	-2.2	-1.7	-1.0	-1.1	-1.4	-1.1	-2.3	-1.8	-2.1	-1.7	-.9	-.5	.1	-.2	-.3	.1	.0	.7	-.8	-.6	.0
2.9	2.8	2.5	2.4	2.7	2.9	2.8	3.9	4.4	4.6	5.5	4.9	4.1	3.1	3.1	3.0	3.2	3.8	4.4	3.9	3.4	3.2	3.3	2.9	2.9	3.1	3.4	3.6	3.5	3.3	3.0	2.6	2.3	2.1	3.0	3.6
5.6	5.4	5.4	5.1	4.9	5.4	5.4	6.0	6.9	7.4	8.0	8.3	8.8	9.3	9.6	9.8	9.8	10.3	10.7	10.2	9.8	9.6	9.0	8.7	8.4	8.0	8.1	8.0	7.8	7.4	6.5	6.1	5.8	5.6	6.0	6.0
10.7	9.9	9.2	8.7	8.3	8.3	8.5	8.8	9.6	10.6	11.6	13.1	14.6	15.2	15.2	15.4	15.6	15.6	15.4	15.2	15.0	14.4	14.9	15.8	14.6	13.6	14.5	14.7	14.3	13.6	13.6	14.0	13.3	13.1	12.7	11.7
15.6	14.4	13.4	13.1	13.7	14.2	14.5	14.9	15.8	16.0	17.0	18.6	18.2	18.5	18.7	19.9	21.5	23.9	25.2	25.3	24.4	25.0	26.4	27.3	23.8	23.6	25.6	26.2	26.8	26.9	26.8	26.1	24.5	22.7	19.4	17.1
20.1	19.6	19.1	19.2	19.4	19.8	20.8	22.6	23.4	23.4	22.4	22.1	22.6	23.2	23.9	24.9	26.1	27.2	28.1	29.1	30.0	30.6	30.5	30.5	30.7	31.1	31.4	31.4	30.7	30.1	29.1	27.6	26.0	24.2	22.1	20.6

Figure 29. ATOVS SD O-B brightness temperature differences (deg C). JUNE 2005
Channel: HIRS15 (700 hPa)
NOAA15, using all observations

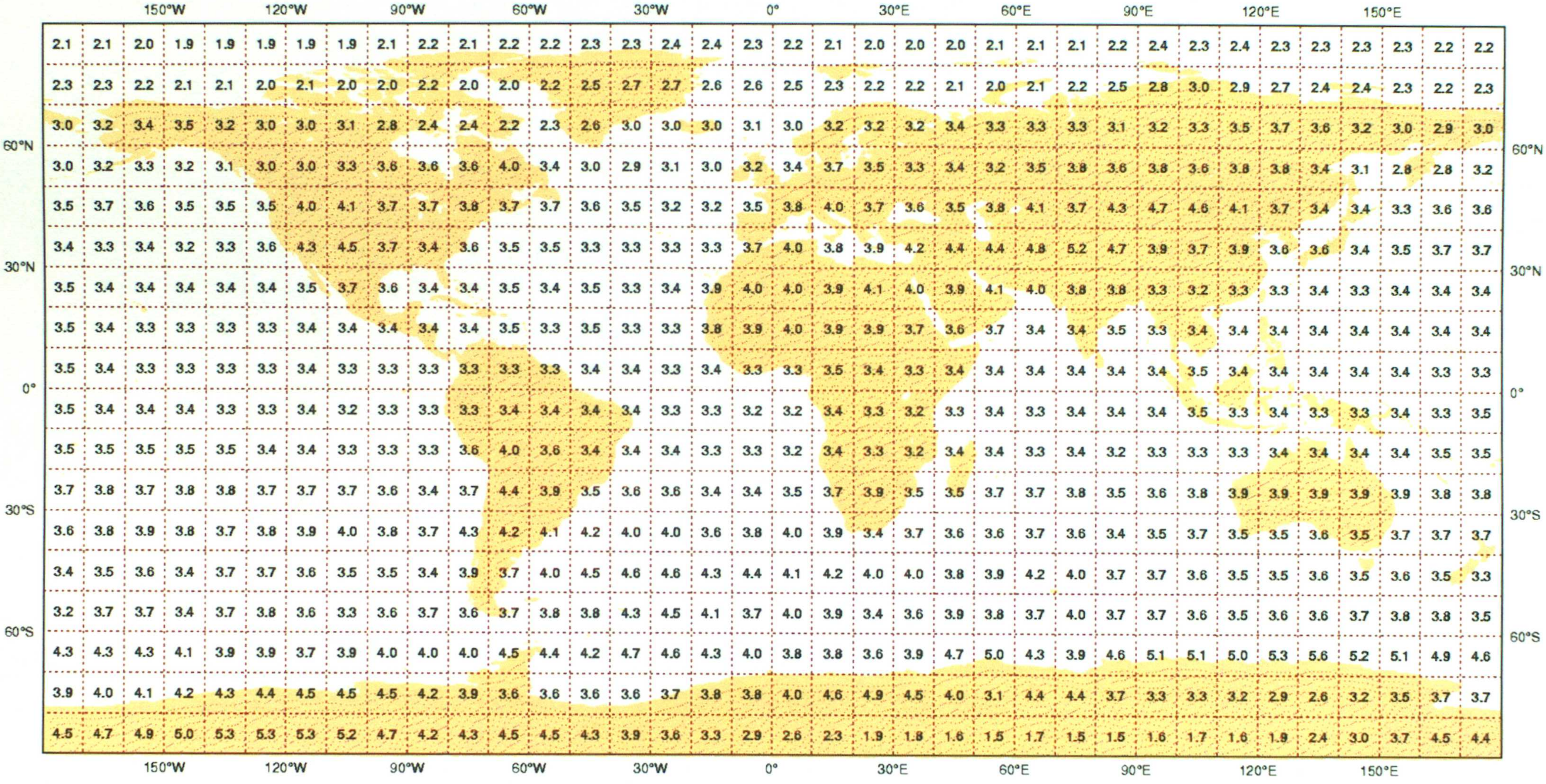
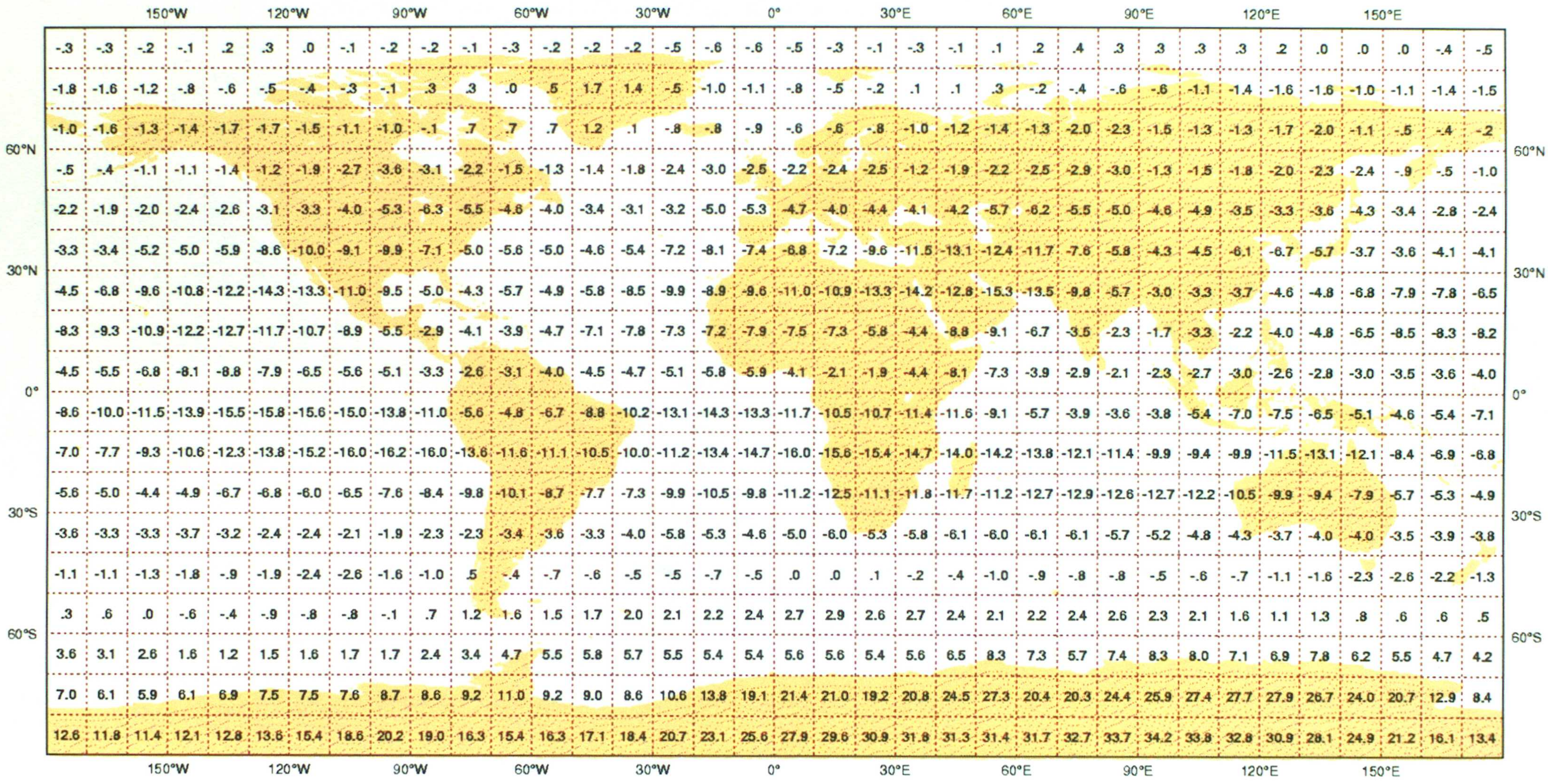
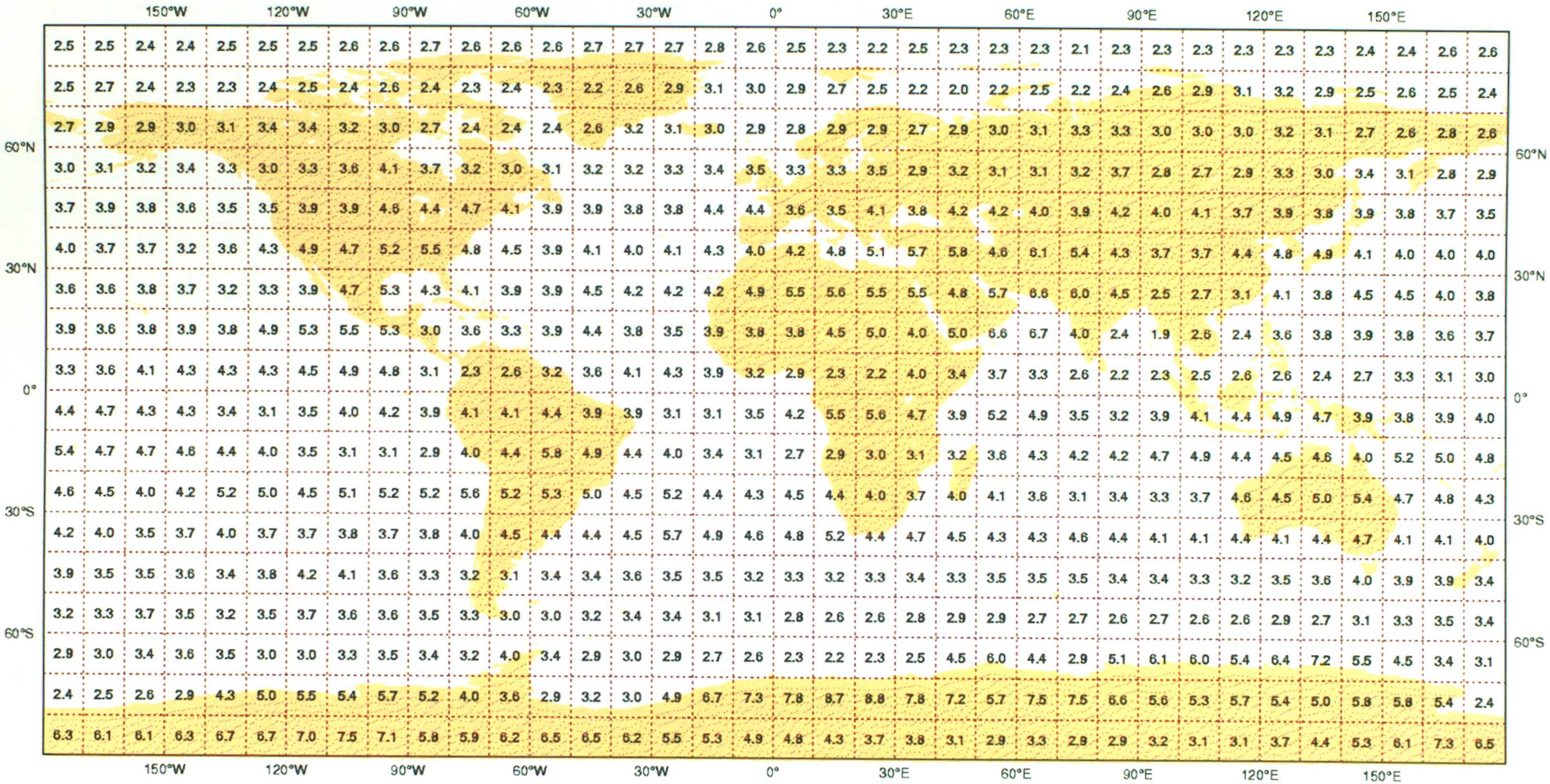

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
2.1 2.1 2.0 1.9 1.9 1.9 1.9 1.9 2.1 2.2 2.1 2.2 2.2 2.3 2.3 2.4 2.4 2.3 2.2 2.1 2.0 2.0 2.0 2.1 2.1 2.1 2.2 2.4 2.3 2.4 2.3 2.3 2.3 2.3 2.2 2.2
2.3 2.3 2.2 2.1 2.1 2.0 2.1 2.0 2.0 2.2 2.0 2.0 2.2 2.5 2.7 2.7 2.6 2.6 2.5 2.3 2.2 2.2 2.1 2.0 2.1 2.2 2.5 2.8 3.0 2.9 2.7 2.4 2.4 2.3 2.2 2.3
3.0 3.2 3.4 3.5 3.2 3.0 3.0 3.1 2.8 2.4 2.4 2.2 2.3 2.6 3.0 3.0 3.0 3.1 3.0 3.2 3.2 3.2 3.4 3.3 3.3 3.3 3.1 3.2 3.3 3.5 3.7 3.6 3.2 3.0 2.9 3.0
3.0 3.2 3.3 3.2 3.1 3.0 3.0 3.3 3.6 3.6 3.6 4.0 3.4 3.0 2.9 3.1 3.0 3.2 3.4 3.7 3.5 3.3 3.4 3.2 3.5 3.8 3.6 3.8 3.6 3.8 3.8 3.4 3.1 2.8 2.8 3.2
3.5 3.7 3.6 3.5 3.5 3.5 4.0 4.1 3.7 3.7 3.8 3.7 3.7 3.6 3.5 3.2 3.2 3.5 3.8 4.0 3.7 3.6 3.5 3.8 4.1 3.7 4.3 4.7 4.6 4.1 3.7 3.4 3.4 3.3 3.6 3.6
3.4 3.3 3.4 3.2 3.3 3.6 4.3 4.5 3.7 3.4 3.6 3.5 3.5 3.3 3.3 3.3 3.3 3.7 4.0 3.8 3.9 4.2 4.4 4.4 4.8 5.2 4.7 3.9 3.7 3.9 3.6 3.6 3.4 3.5 3.7 3.7
3.5 3.4 3.4 3.4 3.4 3.4 3.5 3.7 3.6 3.4 3.4 3.5 3.4 3.5 3.3 3.4 3.9 4.0 4.0 3.9 4.1 4.0 3.9 4.1 4.0 3.8 3.8 3.3 3.2 3.3 3.3 3.4 3.3 3.4 3.4 3.4
3.5 3.4 3.3 3.3 3.3 3.3 3.4 3.4 3.4 3.4 3.4 3.5 3.3 3.5 3.3 3.3 3.8 3.9 4.0 3.9 3.9 3.7 3.6 3.7 3.4 3.4 3.5 3.3 3.4 3.4 3.4 3.4 3.4 3.4 3.4 3.4
3.5 3.4 3.3 3.3 3.3 3.3 3.4 3.3 3.3 3.3 3.3 3.3 3.3 3.4 3.4 3.3 3.4 3.3 3.3 3.5 3.4 3.3 3.4 3.4 3.4 3.4 3.4 3.4 3.5 3.4 3.4 3.4 3.4 3.4 3.3 3.3
3.5 3.4 3.4 3.4 3.3 3.3 3.4 3.2 3.3 3.3 3.3 3.4 3.4 3.4 3.4 3.3 3.3 3.2 3.2 3.4 3.3 3.2 3.3 3.4 3.3 3.4 3.4 3.4 3.5 3.3 3.4 3.3 3.3 3.4 3.3 3.5
3.5 3.5 3.5 3.5 3.5 3.4 3.4 3.3 3.3 3.3 3.6 4.0 3.6 3.4 3.4 3.4 3.3 3.3 3.2 3.4 3.3 3.2 3.4 3.4 3.3 3.4 3.2 3.3 3.3 3.3 3.4 3.4 3.4 3.4 3.5 3.5
3.7 3.8 3.7 3.8 3.8 3.7 3.7 3.7 3.6 3.4 3.7 4.4 3.9 3.5 3.6 3.6 3.4 3.4 3.5 3.7 3.9 3.5 3.5 3.7 3.7 3.8 3.5 3.6 3.8 3.9 3.9 3.9 3.9 3.9 3.8 3.8
3.6 3.8 3.9 3.8 3.7 3.8 3.9 4.0 3.8 3.7 4.3 4.2 4.1 4.2 4.0 4.0 3.6 3.8 4.0 3.9 3.4 3.7 3.6 3.6 3.7 3.6 3.4 3.5 3.7 3.5 3.5 3.6 3.5 3.7 3.7 3.7
3.4 3.5 3.6 3.4 3.7 3.7 3.6 3.5 3.5 3.4 3.9 3.7 4.0 4.5 4.6 4.6 4.3 4.4 4.1 4.2 4.0 4.0 3.8 3.9 4.2 4.0 3.7 3.7 3.6 3.5 3.5 3.6 3.5 3.6 3.5 3.3
3.2 3.7 3.7 3.4 3.7 3.8 3.6 3.3 3.6 3.7 3.6 3.7 3.8 3.8 4.3 4.5 4.1 3.7 4.0 3.9 3.4 3.6 3.9 3.8 3.7 4.0 3.7 3.7 3.6 3.5 3.6 3.6 3.7 3.8 3.8 3.5
4.3 4.3 4.3 4.1 3.9 3.9 3.7 3.9 4.0 4.0 4.0 4.5 4.4 4.2 4.7 4.6 4.3 4.0 3.8 3.8 3.6 3.9 4.7 5.0 4.3 3.9 4.6 5.1 5.1 5.0 5.3 5.6 5.2 5.1 4.9 4.6
3.9 4.0 4.1 4.2 4.3 4.4 4.5 4.5 4.5 4.2 3.9 3.6 3.6 3.6 3.6 3.7 3.8 3.8 4.0 4.6 4.9 4.5 4.0 3.1 4.4 4.4 3.7 3.3 3.3 3.2 2.9 2.6 3.2 3.5 3.7 3.7
4.5 4.7 4.9 5.0 5.3 5.3 5.3 5.2 4.7 4.2 4.3 4.5 4.5 4.3 3.9 3.6 3.3 2.9 2.6 2.3 1.9 1.8 1.6 1.5 1.7 1.5 1.5 1.6 1.7 1.6 1.9 2.4 3.0 3.7 4.5 4.4

Figure 30. ATOVS MEAN O-B brightness temperature differences (deg C). JUNE 2005
Channel: HIRS11 (500 - 700 hPa)
NOAA15, using all observations



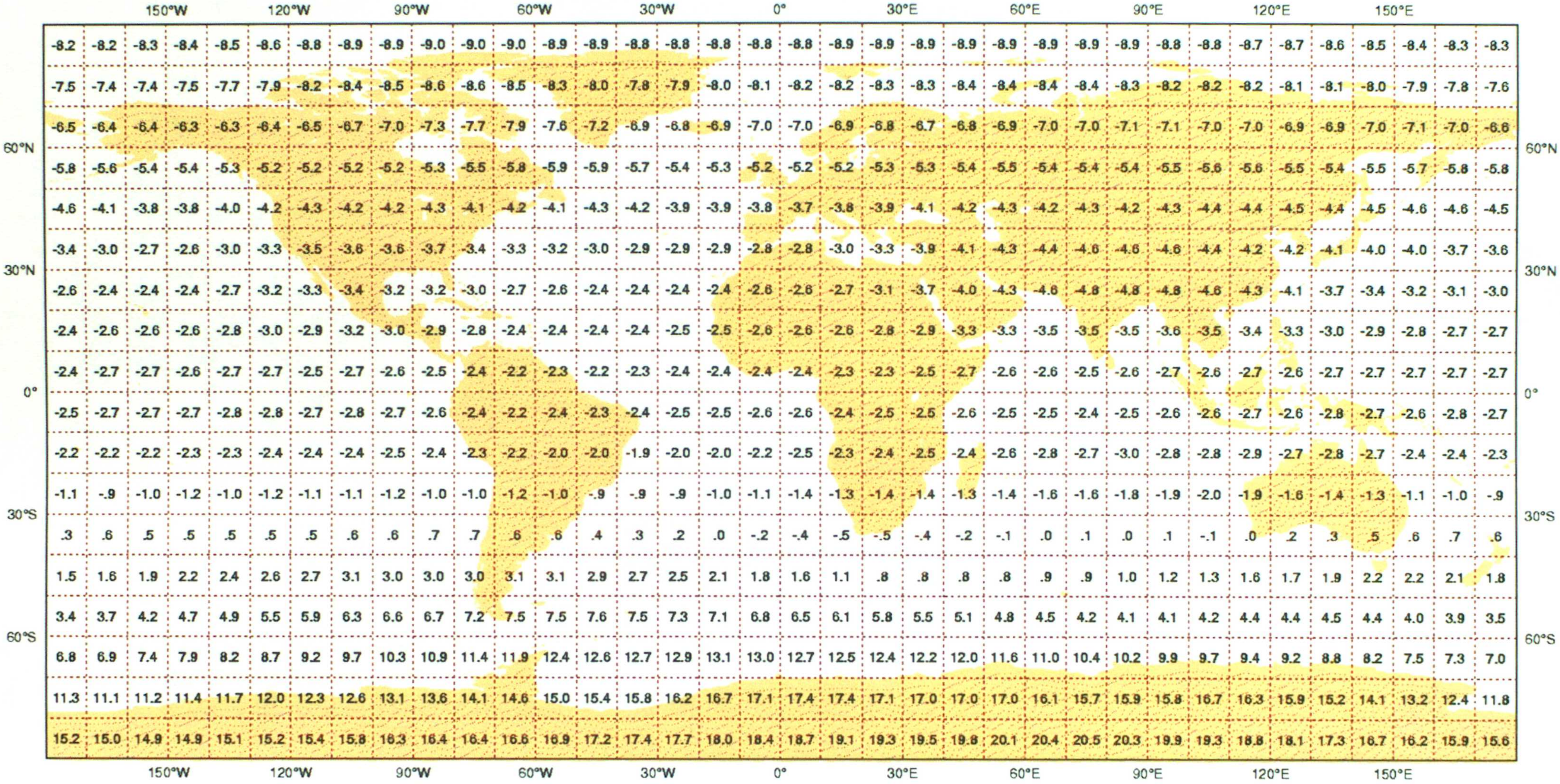
-.3	-.3	-.2	-.1	.2	.3	.0	-.1	-.2	-.2	-.1	-.3	-.2	-.2	-.2	-.5	-.6	-.6	-.5	-.3	-.1	-.3	-.1	.1	.2	.4	.3	.3	.3	.3	.2	.0	.0	.0	-.4	-.5
-1.8	-1.6	-1.2	-.8	-.6	-.5	-.4	-.3	-.1	.3	.3	.0	.5	1.7	1.4	-.5	-1.0	-1.1	-.8	-.5	-.2	.1	.1	.3	-.2	-.4	-.6	-.6	-1.1	-1.4	-1.6	-1.6	-1.0	-1.1	-1.4	-1.5
-1.0	-1.6	-1.3	-1.4	-1.7	-1.7	-1.5	-1.1	-1.0	-.1	.7	.7	.7	1.2	.1	-.8	-.8	-.9	-.6	-.6	-.8	-1.0	-1.2	-1.4	-1.3	-2.0	-2.3	-1.5	-1.3	-1.3	-1.7	-2.0	-1.1	-.5	-.4	-.2
-.5	-.4	-1.1	-1.1	-1.4	-1.2	-1.9	-2.7	-3.6	-3.1	-2.2	-1.5	-1.3	-1.4	-1.8	-2.4	-3.0	-2.5	-2.2	-2.4	-2.5	-1.2	-1.9	-2.2	-2.5	-2.9	-3.0	-1.3	-1.5	-1.8	-2.0	-2.3	-2.4	-.9	-.5	-1.0
-2.2	-1.9	-2.0	-2.4	-2.6	-3.1	-3.3	-4.0	-5.3	-6.3	-5.5	-4.6	-4.0	-3.4	-3.1	-3.2	-5.0	-5.3	-4.7	-4.0	-4.4	-4.1	-4.2	-5.7	-6.2	-5.5	-5.0	-4.6	-4.9	-3.5	-3.3	-3.6	-4.3	-3.4	-2.8	-2.4
-3.3	-3.4	-5.2	-5.0	-5.9	-8.6	-10.0	-9.1	-9.9	-7.1	-5.0	-5.6	-5.0	-4.6	-5.4	-7.2	-8.1	-7.4	-6.8	-7.2	-9.6	-11.5	-13.1	-12.4	-11.7	-7.6	-5.8	-4.3	-4.5	-6.1	-6.7	-5.7	-3.7	-3.6	-4.1	-4.1
-4.5	-6.8	-9.6	-10.8	-12.2	-14.3	-13.3	-11.0	-9.5	-5.0	-4.3	-5.7	-4.9	-5.8	-8.5	-9.9	-8.9	-9.6	-11.0	-10.9	-13.3	-14.2	-12.8	-15.3	-13.5	-9.8	-5.7	-3.0	-3.3	-3.7	-4.6	-4.8	-6.8	-7.9	-7.8	-6.5
-8.3	-9.3	-10.9	-12.2	-12.7	-11.7	-10.7	-8.9	-5.5	-2.9	-4.1	-3.9	-4.7	-7.1	-7.8	-7.3	-7.2	-7.9	-7.5	-7.3	-5.8	-4.4	-8.8	-9.1	-6.7	-3.5	-2.3	-1.7	-3.3	-2.2	-4.0	-4.8	-6.5	-8.5	-8.3	-8.2
-4.5	-5.5	-6.8	-8.1	-8.8	-7.9	-6.5	-5.6	-5.1	-3.3	-2.6	-3.1	-4.0	-4.5	-4.7	-5.1	-5.8	-5.9	-4.1	-2.1	-1.9	-4.4	-8.1	-7.3	-3.9	-2.9	-2.1	-2.3	-2.7	-3.0	-2.6	-2.8	-3.0	-3.5	-3.6	-4.0
-8.6	-10.0	-11.5	-13.9	-15.5	-15.8	-15.6	-15.0	-13.8	-11.0	-5.6	-4.8	-6.7	-8.8	-10.2	-13.1	-14.3	-13.3	-11.7	-10.5	-10.7	-11.4	-11.6	-9.1	-5.7	-3.9	-3.6	-3.8	-5.4	-7.0	-7.5	-6.5	-5.1	-4.6	-5.4	-7.1
-7.0	-7.7	-9.3	-10.6	-12.3	-13.8	-15.2	-16.0	-16.2	-16.0	-13.6	-11.6	-11.1	-10.5	-10.0	-11.2	-13.4	-14.7	-16.0	-15.6	-15.4	-14.7	-14.0	-14.2	-13.8	-12.1	-11.4	-9.9	-9.4	-9.9	-11.5	-13.1	-12.1	-8.4	-6.9	-6.8
-5.6	-5.0	-4.4	-4.9	-6.7	-6.8	-6.0	-6.5	-7.6	-8.4	-9.8	-10.1	-8.7	-7.7	-7.3	-9.9	-10.5	-9.8	-11.2	-12.5	-11.1	-11.8	-11.7	-11.2	-12.7	-12.9	-12.6	-12.7	-12.2	-10.5	-9.9	-9.4	-7.9	-5.7	-5.3	-4.9
-3.6	-3.3	-3.3	-3.7	-3.2	-2.4	-2.4	-2.1	-1.9	-2.3	-2.3	-3.4	-3.6	-3.3	-4.0	-5.8	-5.3	-4.6	-5.0	-6.0	-5.3	-5.8	-6.1	-6.0	-6.1	-6.1	-5.7	-5.2	-4.8	-4.3	-3.7	-4.0	-4.0	-3.5	-3.9	-3.8
-1.1	-1.1	-1.3	-1.8	-.9	-1.9	-2.4	-2.6	-1.6	-1.0	.5	-.4	-.7	-.6	-.5	-.5	-.7	-.5	.0	.0	.1	-.2	-.4	-1.0	-.9	-.8	-.8	-.5	-.6	-.7	-1.1	-1.6	-2.3	-2.6	-2.2	-1.3
.3	.6	.0	-.6	-.4	-.9	-.8	-.8	-.1	.7	1.2	1.6	1.5	1.7	2.0	2.1	2.2	2.4	2.7	2.9	2.6	2.7	2.4	2.1	2.2	2.4	2.6	2.3	2.1	1.6	1.1	1.3	.8	.6	.6	.5
3.6	3.1	2.6	1.6	1.2	1.5	1.6	1.7	1.7	2.4	3.4	4.7	5.5	5.8	5.7	5.5	5.4	5.4	5.6	5.6	5.4	5.6	6.5	8.3	7.3	5.7	7.4	8.3	8.0	7.1	6.9	7.8	6.2	5.5	4.7	4.2
7.0	6.1	5.9	6.1	6.9	7.5	7.5	7.6	8.7	8.6	9.2	11.0	9.2	9.0	8.6	10.6	13.8	19.1	21.4	21.0	19.2	20.8	24.5	27.3	20.4	20.3	24.4	25.9	27.4	27.7	27.9	26.7	24.0	20.7	12.9	8.4
12.6	11.8	11.4	12.1	12.8	13.6	15.4	18.6	20.2	19.0	16.3	15.4	16.3	17.1	18.4	20.7	23.1	25.6	27.9	29.6	30.9	31.8	31.3	31.4	31.7	32.7	33.7	34.2	33.8	32.8	30.9	28.1	24.9	21.2	16.1	13.4

Figure 31. ATOVS SD O-B brightness temperature differences (deg C). JUNE 2005
Channel: HIRS11 (500 - 700 hPa)
NOAA15, using all observations



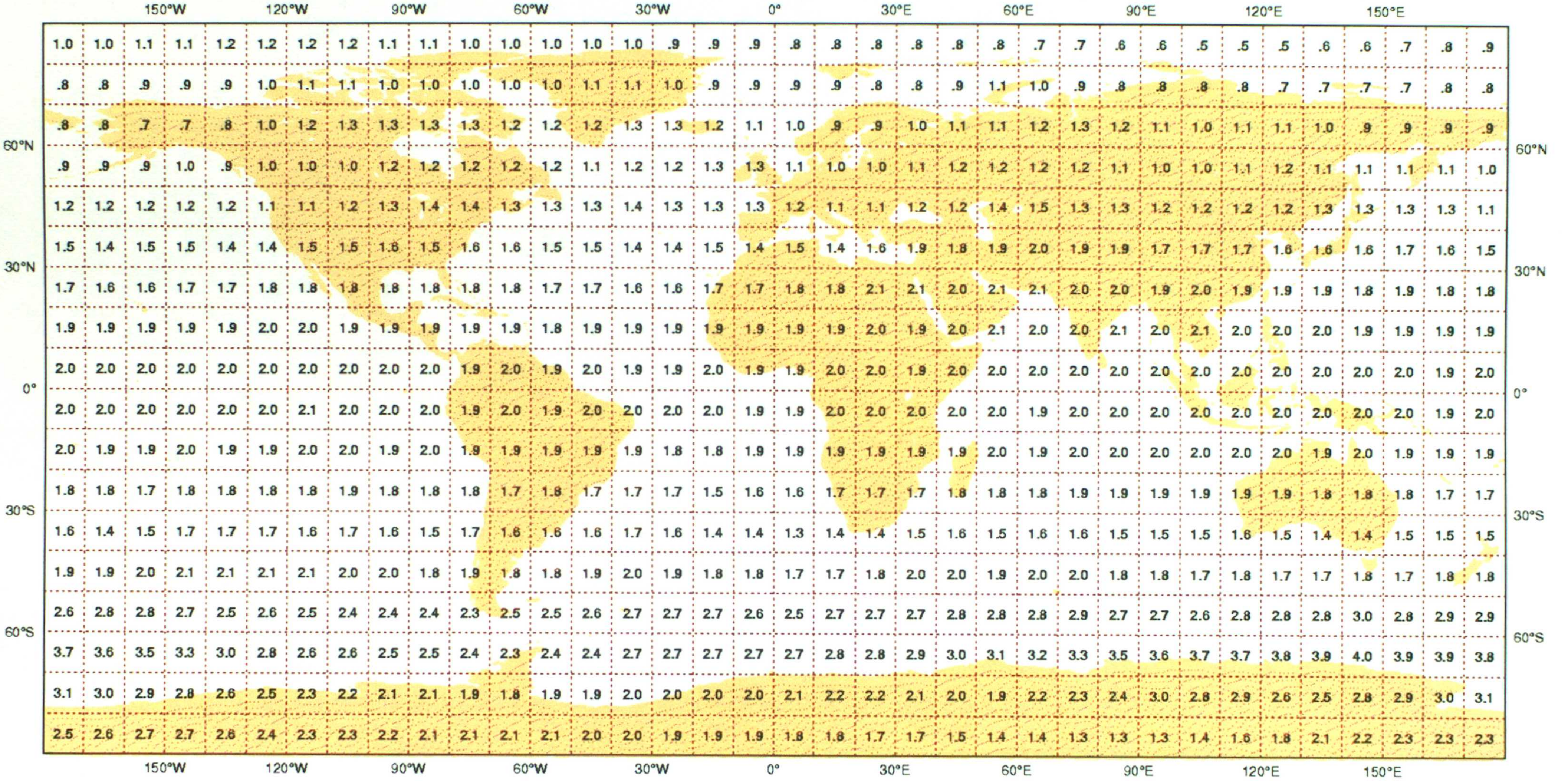
2.5	2.5	2.4	2.4	2.5	2.5	2.5	2.6	2.6	2.7	2.6	2.6	2.6	2.7	2.7	2.7	2.8	2.6	2.5	2.3	2.2	2.5	2.3	2.3	2.3	2.1	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.6	2.6
2.5	2.7	2.4	2.3	2.3	2.4	2.5	2.4	2.6	2.4	2.3	2.4	2.3	2.2	2.6	2.9	3.1	3.0	2.9	2.7	2.5	2.2	2.0	2.2	2.5	2.2	2.4	2.6	2.9	3.1	3.2	2.9	2.5	2.6	2.5	2.4
2.7	2.9	2.9	3.0	3.1	3.4	3.4	3.2	3.0	2.7	2.4	2.4	2.4	2.6	3.2	3.1	3.0	2.9	2.8	2.9	2.9	2.7	2.9	3.0	3.1	3.3	3.3	3.0	3.0	3.0	3.2	3.1	2.7	2.6	2.8	2.6
3.0	3.1	3.2	3.4	3.3	3.0	3.3	3.6	4.1	3.7	3.2	3.0	3.1	3.2	3.2	3.3	3.4	3.5	3.3	3.3	3.5	2.9	3.2	3.1	3.1	3.2	3.7	2.8	2.7	2.9	3.3	3.0	3.4	3.1	2.8	2.9
3.7	3.9	3.8	3.6	3.5	3.5	3.9	3.9	4.6	4.4	4.7	4.1	3.9	3.9	3.8	3.8	4.4	4.4	3.6	3.5	4.1	3.8	4.2	4.2	4.0	3.9	4.2	4.0	4.1	3.7	3.9	3.8	3.9	3.8	3.7	3.5
4.0	3.7	3.7	3.2	3.6	4.3	4.9	4.7	5.2	5.5	4.8	4.5	3.9	4.1	4.0	4.1	4.3	4.0	4.2	4.8	5.1	5.7	5.8	4.6	6.1	5.4	4.3	3.7	3.7	4.4	4.8	4.9	4.1	4.0	4.0	4.0
3.6	3.6	3.8	3.7	3.2	3.3	3.9	4.7	5.3	4.3	4.1	3.9	3.9	4.5	4.2	4.2	4.2	4.9	5.5	5.6	5.5	5.5	4.8	5.7	6.6	6.0	4.5	2.5	2.7	3.1	4.1	3.8	4.5	4.5	4.0	3.8
3.9	3.6	3.8	3.9	3.8	4.9	5.3	5.5	5.3	3.0	3.6	3.3	3.9	4.4	3.8	3.5	3.9	3.8	3.8	4.5	5.0	4.0	5.0	6.6	6.7	4.0	2.4	1.9	2.6	2.4	3.6	3.8	3.9	3.8	3.6	3.7
3.3	3.6	4.1	4.3	4.3	4.3	4.5	4.9	4.8	3.1	2.3	2.6	3.2	3.6	4.1	4.3	3.9	3.2	2.9	2.3	2.2	4.0	3.4	3.7	3.3	2.6	2.2	2.3	2.5	2.6	2.6	2.4	2.7	3.3	3.1	3.0
4.4	4.7	4.3	4.3	3.4	3.1	3.5	4.0	4.2	3.9	4.1	4.1	4.4	3.9	3.9	3.1	3.1	3.5	4.2	5.5	5.6	4.7	3.9	5.2	4.9	3.5	3.2	3.9	4.1	4.4	4.9	4.7	3.9	3.8	3.9	4.0
5.4	4.7	4.7	4.6	4.4	4.0	3.5	3.1	3.1	2.9	4.0	4.4	5.8	4.9	4.4	4.0	3.4	3.1	2.7	2.9	3.0	3.1	3.2	3.6	4.3	4.2	4.2	4.7	4.9	4.4	4.5	4.6	4.0	5.2	5.0	4.8
4.6	4.5	4.0	4.2	5.2	5.0	4.5	5.1	5.2	5.2	5.6	5.2	5.3	5.0	4.5	5.2	4.4	4.3	4.5	4.4	4.0	3.7	4.0	4.1	3.6	3.1	3.4	3.3	3.7	4.6	4.5	5.0	5.4	4.7	4.8	4.3
4.2	4.0	3.5	3.7	4.0	3.7	3.7	3.8	3.7	3.8	4.0	4.5	4.4	4.4	4.5	5.7	4.9	4.6	4.8	5.2	4.4	4.7	4.5	4.3	4.3	4.6	4.4	4.1	4.1	4.4	4.1	4.4	4.7	4.1	4.1	4.0
3.9	3.5	3.5	3.6	3.4	3.8	4.2	4.1	3.6	3.3	3.2	3.1	3.4	3.4	3.6	3.5	3.5	3.2	3.3	3.2	3.3	3.4	3.3	3.5	3.5	3.5	3.4	3.4	3.3	3.2	3.5	3.6	4.0	3.9	3.9	3.4
3.2	3.3	3.7	3.5	3.2	3.5	3.7	3.6	3.6	3.5	3.3	3.0	3.0	3.2	3.4	3.4	3.1	3.1	2.8	2.6	2.6	2.8	2.9	2.9	2.7	2.7	2.6	2.7	2.6	2.6	2.9	2.7	3.1	3.3	3.5	3.4
2.9	3.0	3.4	3.6	3.5	3.0	3.0	3.3	3.5	3.4	3.2	4.0	3.4	2.9	3.0	2.9	2.7	2.6	2.3	2.2	2.3	2.5	4.5	6.0	4.4	2.9	5.1	6.1	6.0	5.4	6.4	7.2	5.5	4.5	3.4	3.1
2.4	2.5	2.6	2.9	4.3	5.0	5.5	5.4	5.7	5.2	4.0	3.6	2.9	3.2	3.0	4.9	6.7	7.3	7.8	8.7	8.8	7.8	7.2	5.7	7.5	7.5	6.6	5.6	5.3	5.7	5.4	5.0	5.8	5.8	5.4	2.4
6.3	6.1	6.1	6.3	6.7	6.7	7.0	7.5	7.1	5.8	5.9	6.2	6.5	6.5	6.2	5.5	5.3	4.9	4.8	4.3	3.7	3.8	3.1	2.9	3.3	2.9	2.9	3.2	3.1	3.1	3.7	4.4	5.3	6.1	7.3	6.5

Figure 32. ATOVS MEAN O-B brightness temperature differences (deg C). JUNE 2005
Channel: HIRS4 (400 hPa)
NOAA15, using all observations



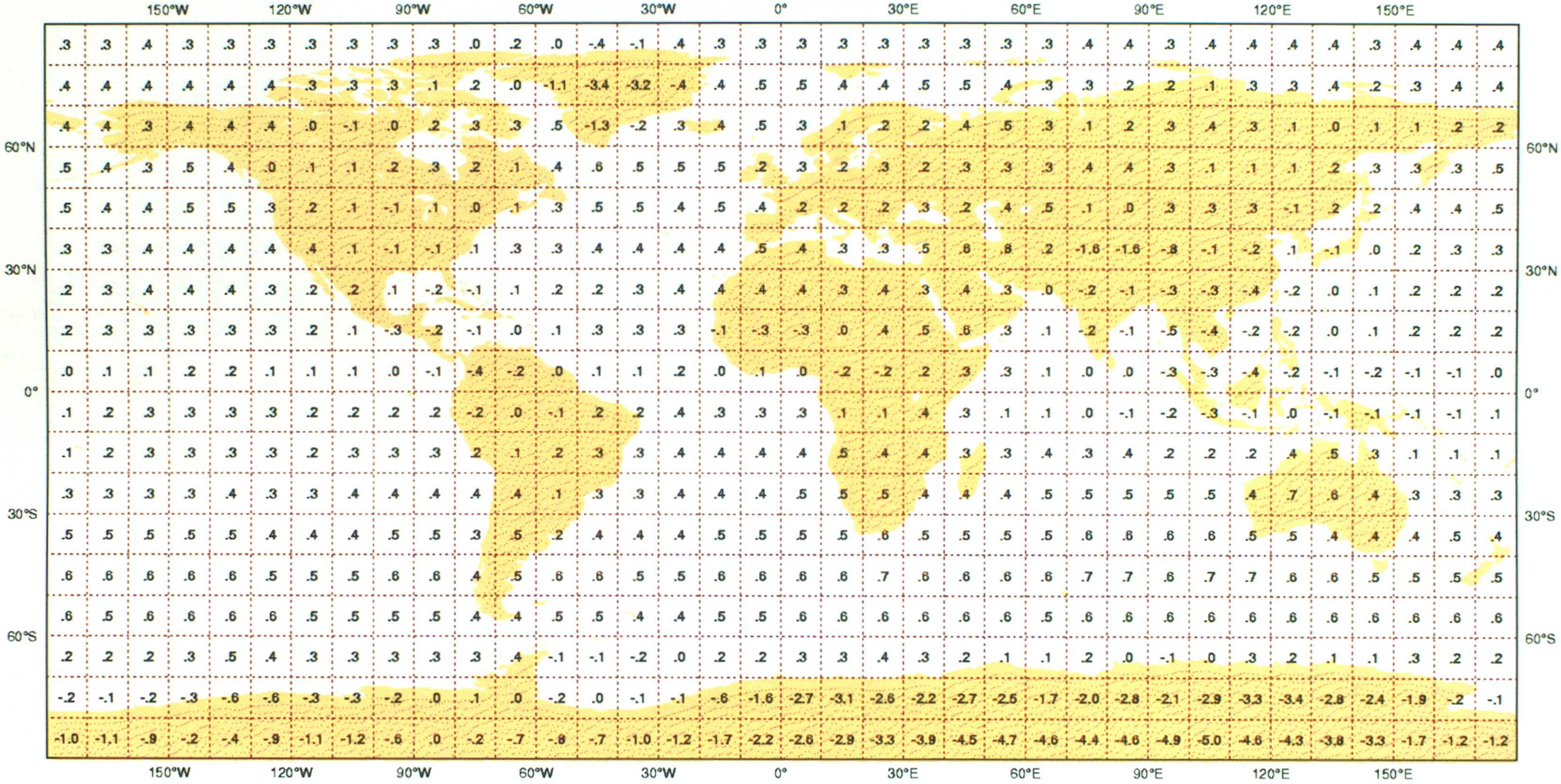
-8.2	-8.2	-8.3	-8.4	-8.5	-8.6	-8.8	-8.9	-8.9	-9.0	-9.0	-9.0	-8.9	-8.9	-8.8	-8.8	-8.8	-8.8	-8.8	-8.9	-8.9	-8.9	-8.9	-8.9	-8.9	-8.9	-8.9	-8.8	-8.8	-8.7	-8.7	-8.6	-8.5	-8.4	-8.3	-8.3
-7.5	-7.4	-7.4	-7.5	-7.7	-7.9	-8.2	-8.4	-8.5	-8.6	-8.6	-8.5	-8.3	-8.0	-7.8	-7.9	-8.0	-8.1	-8.2	-8.2	-8.3	-8.3	-8.4	-8.4	-8.4	-8.4	-8.3	-8.2	-8.2	-8.2	-8.1	-8.1	-8.0	-7.9	-7.8	-7.6
-6.5	-6.4	-6.4	-6.3	-6.3	-6.4	-6.5	-6.7	-7.0	-7.3	-7.7	-7.9	-7.6	-7.2	-6.9	-6.8	-6.9	-7.0	-7.0	-6.9	-6.8	-6.7	-6.8	-6.9	-7.0	-7.0	-7.1	-7.1	-7.0	-7.0	-6.9	-6.9	-7.0	-7.1	-7.0	-6.6
-5.8	-5.6	-5.4	-5.4	-5.3	-5.2	-5.2	-5.2	-5.2	-5.3	-5.5	-5.8	-5.9	-5.9	-5.7	-5.4	-5.3	-5.2	-5.2	-5.2	-5.3	-5.3	-5.4	-5.5	-5.4	-5.4	-5.4	-5.5	-5.6	-5.6	-5.5	-5.4	-5.5	-5.7	-5.8	-5.8
-4.6	-4.1	-3.8	-3.8	-4.0	-4.2	-4.3	-4.2	-4.2	-4.3	-4.1	-4.2	-4.1	-4.3	-4.2	-3.9	-3.9	-3.8	-3.7	-3.8	-3.9	-4.1	-4.2	-4.3	-4.2	-4.3	-4.2	-4.3	-4.4	-4.4	-4.5	-4.4	-4.5	-4.6	-4.6	-4.5
-3.4	-3.0	-2.7	-2.6	-3.0	-3.3	-3.5	-3.6	-3.6	-3.7	-3.4	-3.3	-3.2	-3.0	-2.9	-2.9	-2.9	-2.8	-2.8	-3.0	-3.3	-3.9	-4.1	-4.3	-4.4	-4.6	-4.6	-4.6	-4.4	-4.2	-4.2	-4.1	-4.0	-4.0	-3.7	-3.6
-2.6	-2.4	-2.4	-2.4	-2.7	-3.2	-3.3	-3.4	-3.2	-3.2	-3.0	-2.7	-2.6	-2.4	-2.4	-2.4	-2.4	-2.6	-2.6	-2.7	-3.1	-3.7	-4.0	-4.3	-4.6	-4.8	-4.8	-4.8	-4.6	-4.3	-4.1	-3.7	-3.4	-3.2	-3.1	-3.0
-2.4	-2.6	-2.6	-2.6	-2.8	-3.0	-2.9	-3.2	-3.0	-2.9	-2.8	-2.4	-2.4	-2.4	-2.4	-2.5	-2.5	-2.6	-2.6	-2.6	-2.8	-2.9	-3.3	-3.3	-3.5	-3.5	-3.5	-3.6	-3.5	-3.4	-3.3	-3.0	-2.9	-2.8	-2.7	-2.7
-2.4	-2.7	-2.7	-2.6	-2.7	-2.7	-2.5	-2.7	-2.6	-2.5	-2.4	-2.2	-2.3	-2.2	-2.3	-2.4	-2.4	-2.4	-2.4	-2.3	-2.3	-2.5	-2.7	-2.6	-2.6	-2.5	-2.6	-2.7	-2.6	-2.7	-2.6	-2.7	-2.7	-2.7	-2.7	-2.7
-2.5	-2.7	-2.7	-2.7	-2.8	-2.8	-2.7	-2.8	-2.7	-2.6	-2.4	-2.2	-2.4	-2.3	-2.4	-2.5	-2.5	-2.6	-2.6	-2.4	-2.5	-2.5	-2.6	-2.5	-2.5	-2.4	-2.5	-2.6	-2.6	-2.7	-2.6	-2.8	-2.7	-2.6	-2.8	-2.7
-2.2	-2.2	-2.2	-2.3	-2.3	-2.4	-2.4	-2.4	-2.5	-2.4	-2.3	-2.2	-2.0	-2.0	-1.9	-2.0	-2.0	-2.2	-2.5	-2.3	-2.4	-2.5	-2.4	-2.6	-2.8	-2.7	-3.0	-2.8	-2.8	-2.9	-2.7	-2.8	-2.7	-2.4	-2.4	-2.3
-1.1	-.9	-1.0	-1.2	-1.0	-1.2	-1.1	-1.1	-1.2	-1.0	-1.0	-1.2	-1.0	-.9	-.9	-.9	-1.0	-1.1	-1.4	-1.3	-1.4	-1.4	-1.3	-1.4	-1.6	-1.6	-1.8	-1.9	-2.0	-1.9	-1.6	-1.4	-1.3	-1.1	-1.0	-.9
.3	.6	.5	.5	.5	.5	.5	.6	.6	.7	.7	.6	.6	.4	.3	.2	.0	-.2	-.4	-.5	-.5	-.4	-.2	-.1	.0	.1	.0	.1	-.1	.0	.2	.3	.5	.6	.7	.6
1.5	1.6	1.9	2.2	2.4	2.6	2.7	3.1	3.0	3.0	3.0	3.1	3.1	2.9	2.7	2.5	2.1	1.8	1.6	1.1	.8	.8	.8	.8	.9	.9	1.0	1.2	1.3	1.6	1.7	1.9	2.2	2.2	2.1	1.8
3.4	3.7	4.2	4.7	4.9	5.5	5.9	6.3	6.6	6.7	7.2	7.5	7.5	7.6	7.5	7.3	7.1	6.8	6.5	6.1	5.8	5.5	5.1	4.8	4.5	4.2	4.1	4.1	4.2	4.4	4.4	4.5	4.4	4.0	3.9	3.5
6.8	6.9	7.4	7.9	8.2	8.7	9.2	9.7	10.3	10.9	11.4	11.9	12.4	12.6	12.7	12.9	13.1	13.0	12.7	12.5	12.4	12.2	12.0	11.6	11.0	10.4	10.2	9.9	9.7	9.4	9.2	8.8	8.2	7.5	7.3	7.0
11.3	11.1	11.2	11.4	11.7	12.0	12.3	12.6	13.1	13.6	14.1	14.6	15.0	15.4	15.8	16.2	16.7	17.1	17.4	17.4	17.1	17.0	17.0	17.0	16.1	15.7	15.9	15.8	16.7	16.3	15.9	15.2	14.1	13.2	12.4	11.8
15.2	15.0	14.9	14.9	15.1	15.2	15.4	15.8	16.3	16.4	16.4	16.6	16.9	17.2	17.4	17.7	18.0	18.4	18.7	19.1	19.3	19.5	19.8	20.1	20.4	20.5	20.3	19.9	19.3	18.8	18.1	17.3	16.7	16.2	15.9	15.6

Figure 33. ATOVS SD O-B brightness temperature differences (deg C). JUNE 2005
Channel: HIRS4 (400 hPa)
NOAA15, using all observations



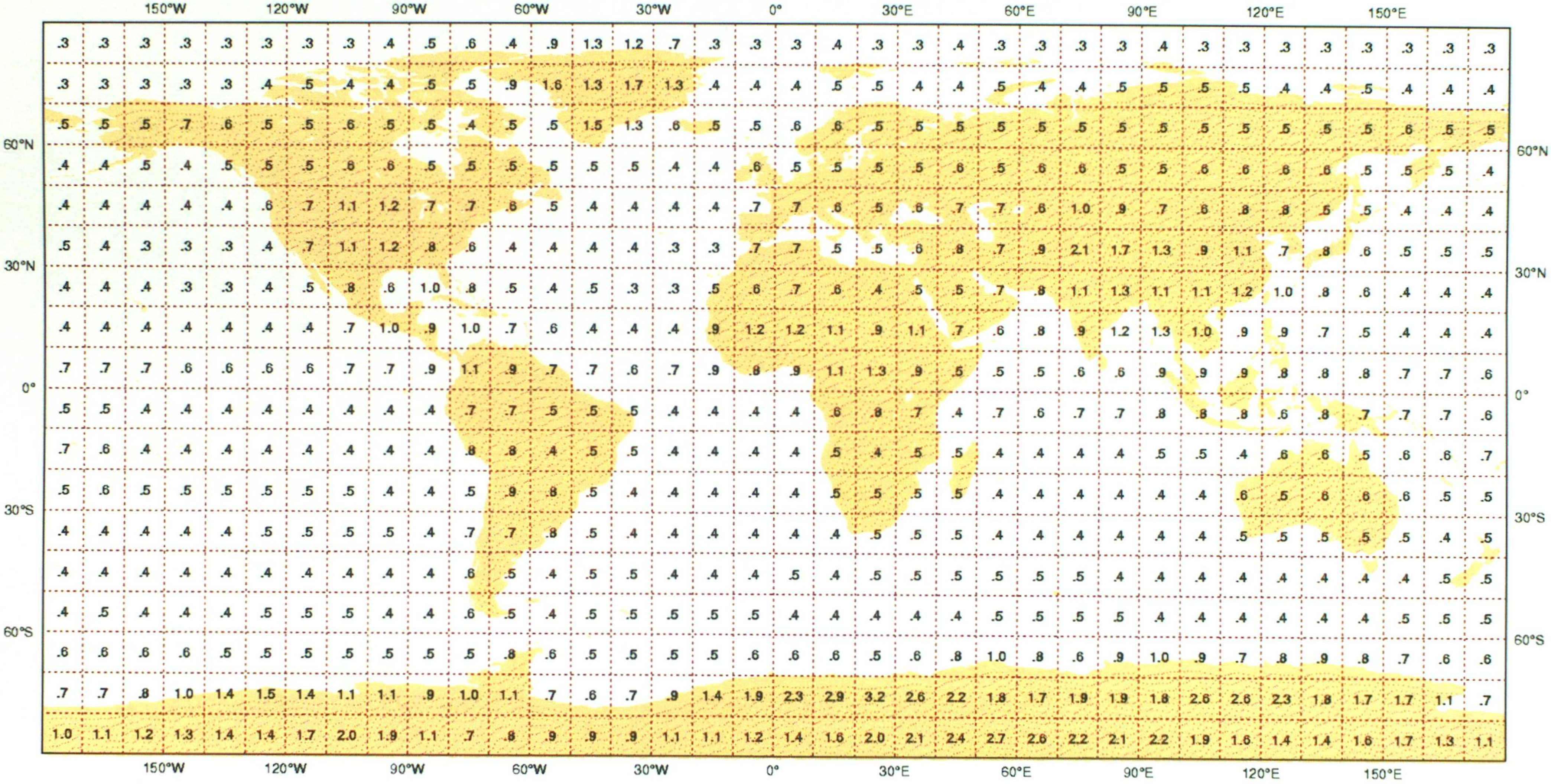
1.0	1.0	1.1	1.1	1.2	1.2	1.2	1.2	1.1	1.1	1.0	1.0	1.0	1.0	1.0	.9	.9	.9	.8	.8	.8	.8	.8	.8	.7	.7	.6	.6	.5	.5	.5	.6	.6	.7	.8	.9
.8	.8	.9	.9	.9	1.0	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.0	.9	.9	.9	.9	.8	.8	.9	1.1	1.0	.9	.8	.8	.8	.8	.7	.7	.7	.7	.8	.8
.8	.8	.7	.7	.8	1.0	1.2	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.3	1.3	1.2	1.1	1.0	.9	.9	1.0	1.1	1.1	1.2	1.3	1.2	1.1	1.0	1.1	1.1	1.0	.9	.9	.9	.9
.9	.9	.9	1.0	.9	1.0	1.0	1.0	1.2	1.2	1.2	1.2	1.2	1.1	1.2	1.2	1.3	1.3	1.1	1.0	1.0	1.1	1.2	1.2	1.2	1.2	1.1	1.0	1.0	1.1	1.2	1.1	1.1	1.1	1.1	1.0
1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.2	1.3	1.4	1.4	1.3	1.3	1.3	1.4	1.3	1.3	1.3	1.2	1.1	1.1	1.2	1.2	1.4	1.5	1.3	1.3	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.1
1.5	1.4	1.5	1.5	1.4	1.4	1.5	1.5	1.6	1.5	1.6	1.6	1.5	1.5	1.4	1.4	1.5	1.4	1.5	1.4	1.6	1.9	1.8	1.9	2.0	1.9	1.9	1.7	1.7	1.7	1.6	1.6	1.6	1.7	1.6	1.5
1.7	1.6	1.6	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.6	1.6	1.7	1.7	1.8	1.8	2.1	2.1	2.0	2.1	2.1	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.8	1.9	1.8	1.8
1.9	1.9	1.9	1.9	1.9	2.0	2.0	1.9	1.9	1.9	1.9	1.9	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.1	2.0	2.0	2.1	2.0	2.1	2.0	2.0	2.0	1.9	1.9	1.9	1.9
2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	1.9	2.0	1.9	1.9	2.0	1.9	1.9	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0
2.0	2.0	2.0	2.0	2.0	2.0	2.1	2.0	2.0	2.0	1.9	2.0	1.9	2.0	2.0	2.0	2.0	1.9	1.9	2.0	2.0	2.0	2.0	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0
2.0	1.9	1.9	2.0	1.9	1.9	2.0	2.0	1.9	2.0	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	2.0	1.9	2.0	2.0	2.0	2.0	2.0	2.0	1.9	2.0	1.9	1.9	1.9
1.8	1.8	1.7	1.8	1.8	1.8	1.8	1.9	1.8	1.8	1.8	1.7	1.8	1.7	1.7	1.7	1.5	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.7	1.7
1.6	1.4	1.5	1.7	1.7	1.7	1.6	1.7	1.6	1.5	1.7	1.6	1.6	1.6	1.7	1.6	1.4	1.4	1.3	1.4	1.4	1.5	1.6	1.5	1.6	1.6	1.5	1.5	1.5	1.6	1.5	1.4	1.4	1.5	1.5	1.5
1.9	1.9	2.0	2.1	2.1	2.1	2.1	2.0	2.0	1.8	1.9	1.8	1.8	1.9	2.0	1.9	1.8	1.8	1.7	1.7	1.8	2.0	2.0	1.9	2.0	2.0	1.8	1.8	1.7	1.8	1.7	1.7	1.8	1.7	1.8	1.8
2.6	2.8	2.8	2.7	2.5	2.6	2.5	2.4	2.4	2.4	2.3	2.5	2.5	2.6	2.7	2.7	2.7	2.6	2.5	2.7	2.7	2.7	2.8	2.8	2.8	2.9	2.7	2.7	2.6	2.8	2.8	2.8	3.0	2.8	2.9	2.9
3.7	3.6	3.5	3.3	3.0	2.8	2.6	2.6	2.5	2.5	2.4	2.3	2.4	2.4	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.9	3.0	3.1	3.2	3.3	3.5	3.6	3.7	3.7	3.8	3.9	4.0	3.9	3.9	3.8
3.1	3.0	2.9	2.8	2.6	2.5	2.3	2.2	2.1	2.1	1.9	1.8	1.9	1.9	2.0	2.0	2.0	2.0	2.1	2.2	2.2	2.1	2.0	1.9	2.2	2.3	2.4	3.0	2.8	2.9	2.6	2.5	2.8	2.9	3.0	3.1
2.5	2.6	2.7	2.7	2.6	2.4	2.3	2.3	2.2	2.1	2.1	2.1	2.1	2.0	2.0	1.9	1.9	1.9	1.8	1.8	1.7	1.7	1.5	1.4	1.4	1.3	1.3	1.3	1.4	1.6	1.8	2.1	2.2	2.3	2.3	2.3

Figure 34. ATOVS MEAN O-B brightness temperature differences (deg C). JUNE 2005
Channel: AMSUA-5 (700 hPa)
NOAA15, using all observations



.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.0	.2	.0	-.4	-.1	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3	.4	.4	.4	.4	.3	.4	.4	.4
.4	.4	.4	.4	.4	.4	.3	.3	.3	.1	.2	.0	-1.1	-3.4	-3.2	-.4	.4	.5	.5	.4	.4	.5	.5	.4	.3	.3	.2	.2	.1	.3	.3	.4	.2	.3	.4	.4
.4	.4	.3	.4	.4	.4	.0	-.1	.0	.2	.3	.3	.5	-1.3	-.2	.3	.4	.5	.3	.1	.2	.2	.4	.5	.3	.1	.2	.3	.4	.3	.1	.0	.1	.1	.2	.2
.5	.4	.3	.5	.4	.0	.1	.1	.2	.3	.2	.1	.4	.6	.5	.5	.5	.2	.3	.2	.3	.2	.3	.3	.3	.4	.4	.3	.1	.1	.1	.2	.3	.3	.3	.5
.5	.4	.4	.5	.5	.3	.2	.1	-.1	.1	.0	.1	.3	.5	.5	.4	.5	.4	.2	.2	.2	.3	.2	.4	.5	.1	.0	.3	.3	.3	-.1	.2	.2	.4	.4	.5
.3	.3	.4	.4	.4	.4	.4	.1	-.1	-.1	.1	.3	.3	.4	.4	.4	.4	.5	.4	.3	.3	.5	.6	.8	.2	-1.6	-1.6	-.8	-.1	-.2	.1	-.1	.0	.2	.3	.3
.2	.3	.4	.4	.4	.3	.2	.2	.1	-.2	-.1	.1	.2	.2	.3	.4	.4	.4	.4	.3	.4	.3	.4	.3	.0	-.2	-.1	-.3	-.3	-.4	-.2	.0	.1	.2	.2	.2
.2	.3	.3	.3	.3	.3	.2	.1	-.3	-.2	-.1	.0	.1	.3	.3	.3	-.1	-.3	-.3	.0	.4	.5	.6	.3	.1	-.2	-.1	-.5	-.4	-.2	-.2	.0	.1	.2	.2	.2
.0	.1	.1	.2	.2	.1	.1	.1	.0	-.1	-.4	-.2	.0	.1	.1	.2	.0	.1	.0	-.2	-.2	.2	.3	.3	.1	.0	.0	-.3	-.3	-.4	-.2	-.1	-.2	-.1	-.1	.0
.1	.2	.3	.3	.3	.3	.2	.2	.2	.2	-.2	.0	-.1	.2	.2	.4	.3	.3	.3	.1	.1	.4	.3	.1	.1	.0	-.1	-.2	-.3	-.1	.0	-.1	-.1	-.1	-.1	.1
.1	.2	.3	.3	.3	.3	.2	.3	.3	.3	.2	.1	.2	.3	.3	.4	.4	.4	.4	.5	.4	.4	.3	.3	.4	.3	.4	.2	.2	.2	.4	.5	.3	.1	.1	.1
.3	.3	.3	.3	.4	.3	.3	.4	.4	.4	.4	.4	.1	.3	.3	.4	.4	.4	.5	.5	.5	.4	.4	.4	.5	.5	.5	.5	.5	.4	.7	.6	.4	.3	.3	.3
.5	.5	.5	.5	.5	.4	.4	.4	.5	.5	.3	.5	.2	.4	.4	.4	.5	.5	.5	.5	.6	.5	.5	.5	.5	.6	.6	.6	.6	.5	.5	.4	.4	.4	.5	.4
.6	.6	.6	.6	.6	.5	.5	.5	.6	.6	.4	.5	.6	.6	.5	.5	.6	.6	.6	.6	.7	.6	.6	.6	.6	.7	.7	.6	.7	.7	.6	.6	.5	.5	.5	.5
.6	.5	.6	.6	.6	.6	.5	.5	.5	.5	.4	.4	.5	.5	.4	.4	.5	.5	.6	.6	.6	.6	.6	.6	.5	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6
.2	.2	.2	.3	.5	.4	.3	.3	.3	.3	.3	.4	-.1	-.1	-.2	.0	.2	.2	.3	.3	.4	.3	.2	.1	.1	.2	.0	-.1	.0	.3	.2	.1	.1	.3	.2	.2
-.2	-.1	-.2	-.3	-.6	-.6	-.3	-.3	-.2	.0	.1	.0	-.2	.0	-.1	-.1	-.6	-1.6	-2.7	-3.1	-2.6	-2.2	-2.7	-2.5	-1.7	-2.0	-2.8	-2.1	-2.9	-3.3	-3.4	-2.8	-2.4	-1.9	-.2	-.1
-1.0	-1.1	-.9	-.2	-.4	-.9	-1.1	-1.2	-.6	.0	-.2	-.7	-.8	-.7	-1.0	-1.2	-1.7	-2.2	-2.6	-2.9	-3.3	-3.9	-4.5	-4.7	-4.6	-4.4	-4.6	-4.9	-5.0	-4.6	-4.3	-3.8	-3.3	-1.7	-1.2	-1.2

Figure 35. ATOVS SD O-B brightness temperature differences (deg C). JUNE 2005
Channel: AMSUA-5 (700 hPa)
NOAA15, using all observations



.3	.3	.3	.3	.3	.3	.3	.3	.4	.5	.6	.4	.9	1.3	1.2	.7	.3	.3	.3	.4	.3	.3	.4	.3	.3	.3	.3	.4	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.3	.4	.5	.4	.4	.5	.5	.9	1.6	1.3	1.7	1.3	.4	.4	.4	.5	.5	.4	.4	.5	.4	.4	.5	.5	.5	.5	.4	.4	.5	.4	.4	.4
.5	.5	.5	.7	.6	.5	.5	.6	.5	.5	.4	.5	.5	1.5	1.3	.6	.5	.5	.6	.6	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.6	.5	.5
.4	.4	.5	.4	.5	.5	.5	.6	.6	.5	.5	.5	.5	.5	.5	.4	.4	.6	.5	.5	.5	.5	.6	.5	.6	.6	.5	.5	.6	.6	.6	.6	.5	.5	.5	.4
.4	.4	.4	.4	.4	.6	.7	1.1	1.2	.7	.7	.6	.5	.4	.4	.4	.4	.7	.7	.6	.5	.6	.7	.7	.6	1.0	.9	.7	.6	.8	.8	.5	.5	.4	.4	.4
.5	.4	.3	.3	.3	.4	.7	1.1	1.2	.8	.6	.4	.4	.4	.4	.3	.3	.7	.7	.5	.5	.6	.8	.7	.9	2.1	1.7	1.3	.9	1.1	.7	.8	.6	.5	.5	.5
.4	.4	.4	.3	.3	.4	.5	.8	.6	1.0	.8	.5	.4	.5	.3	.3	.5	.6	.7	.6	.4	.5	.5	.7	.8	1.1	1.3	1.1	1.1	1.2	1.0	.8	.6	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.7	1.0	.9	1.0	.7	.6	.4	.4	.4	.9	1.2	1.2	1.1	.9	1.1	.7	.6	.8	.9	1.2	1.3	1.0	.9	.9	.7	.5	.4	.4	.4
.7	.7	.7	.6	.6	.6	.6	.7	.7	.9	1.1	.9	.7	.7	.6	.7	.9	.8	.9	1.1	1.3	.9	.5	.5	.5	.6	.6	.9	.9	.9	.8	.8	.8	.7	.7	.6
.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.7	.7	.5	.5	.5	.4	.4	.4	.4	.6	.8	.7	.4	.7	.6	.7	.7	.8	.8	.8	.6	.8	.7	.7	.7	.6
.7	.6	.4	.4	.4	.4	.4	.4	.4	.4	.8	.8	.4	.5	.5	.4	.4	.4	.4	.5	.4	.5	.5	.4	.4	.4	.4	.5	.5	.4	.6	.6	.5	.6	.6	.7
.5	.6	.5	.5	.5	.5	.5	.5	.4	.4	.5	.9	.8	.5	.4	.4	.4	.4	.4	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.6	.5	.6	.6	.6	.5	.5
.4	.4	.4	.4	.4	.5	.5	.5	.5	.4	.7	.7	.8	.5	.4	.4	.4	.4	.4	.4	.5	.5	.5	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.4	.5
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.6	.5	.4	.5	.5	.4	.4	.4	.5	.4	.5	.5	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.5	.5
.4	.5	.4	.4	.4	.5	.5	.5	.4	.4	.6	.5	.4	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.5	.5
.6	.6	.6	.6	.5	.5	.5	.5	.5	.5	.5	.8	.6	.5	.5	.5	.5	.6	.6	.6	.5	.6	.8	1.0	.8	.6	.9	1.0	.9	.7	.8	.9	.8	.7	.6	.6
.7	.7	.8	1.0	1.4	1.5	1.4	1.1	1.1	.9	1.0	1.1	.7	.6	.7	.9	1.4	1.9	2.3	2.9	3.2	2.6	2.2	1.8	1.7	1.9	1.9	1.8	2.6	2.6	2.3	1.8	1.7	1.7	1.1	.7
1.0	1.1	1.2	1.3	1.4	1.4	1.7	2.0	1.9	1.1	.7	.8	.9	.9	.9	1.1	1.1	1.2	1.4	1.6	2.0	2.1	2.4	2.7	2.6	2.2	2.1	2.2	1.9	1.6	1.4	1.4	1.6	1.7	1.3	1.1

Figure 36. ATOVS MEAN O-B brightness temperature differences (deg C). JUNE 2005
Channel: AMSUA-7 (300 hPa)
NOAA15, using all observations

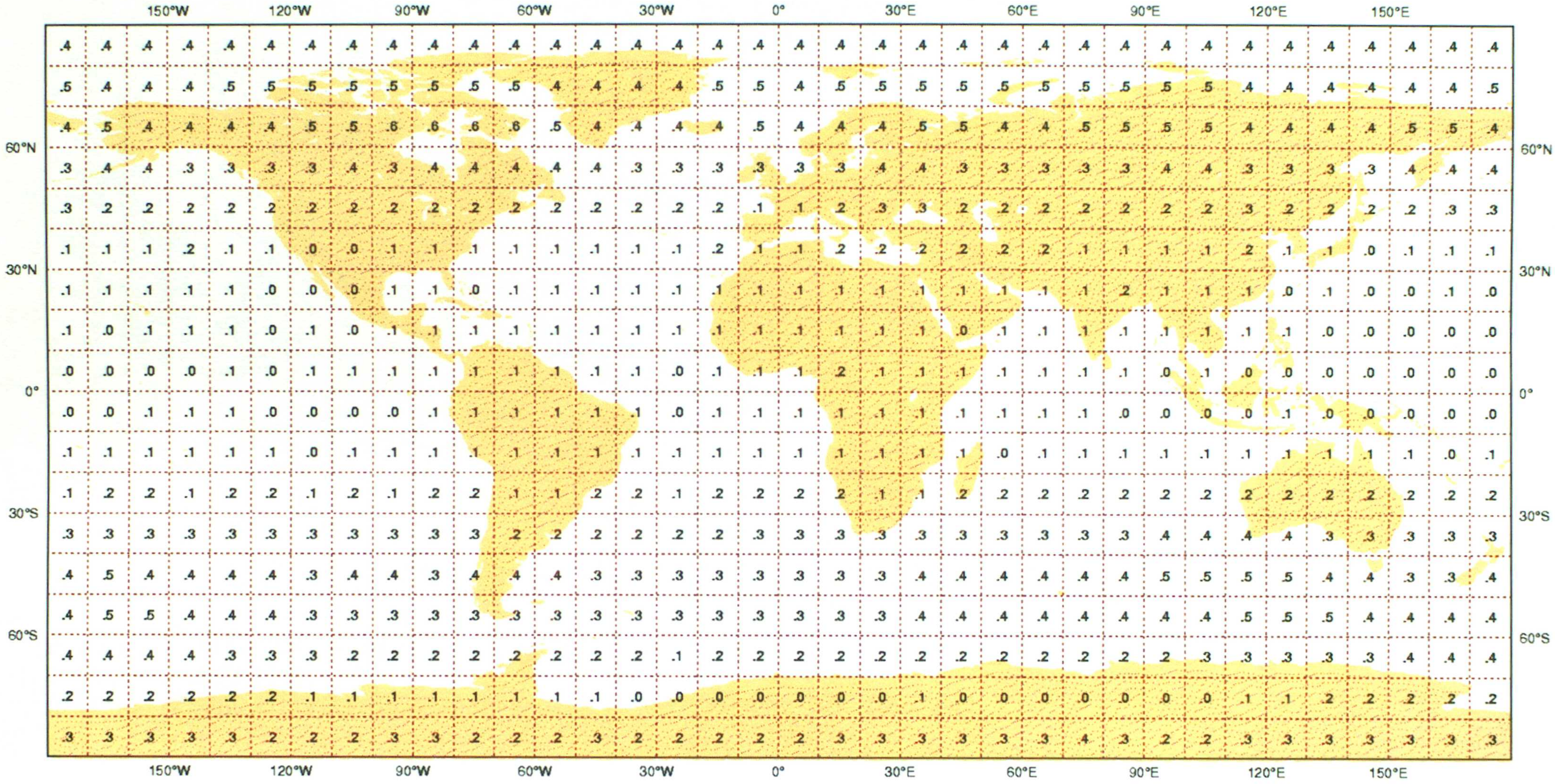
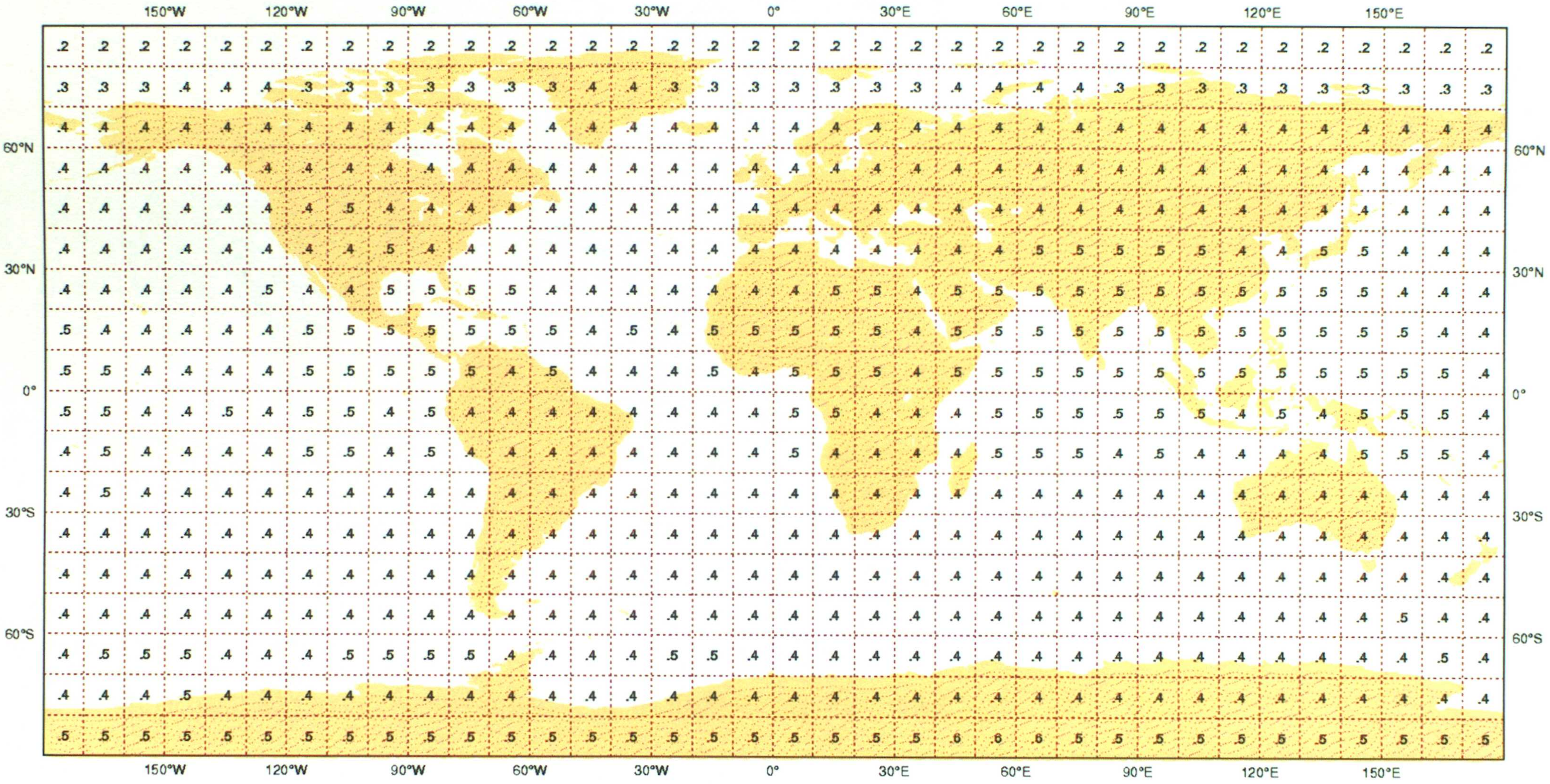
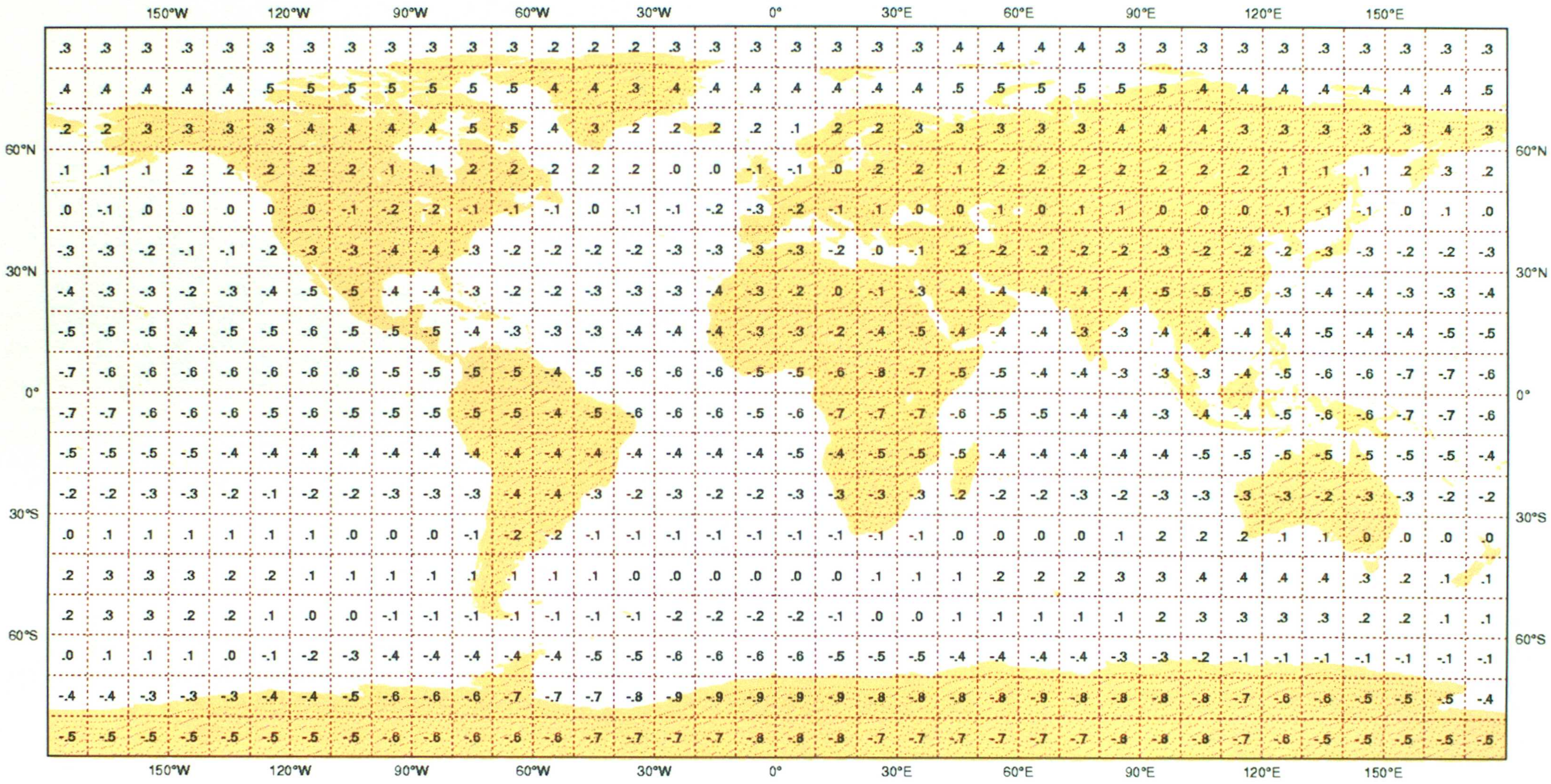

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.5 .4 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .4 .5 .5 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .5
.4 .5 .4 .4 .4 .4 .5 .5 .6 .6 .6 .6 .5 .4 .4 .4 .4 .5 .4 .4 .4 .5 .5 .4 .4 .5 .5 .5 .5 .4 .4 .4 .4 .5 .5 .4
.3 .4 .4 .3 .3 .3 .3 .4 .3 .4 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .4 .4 .3 .3 .3 .3 .3 .4 .4 .3 .3 .3 .3 .4 .4 .4
.3 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .1 .1 .2 .3 .3 .2 .2 .2 .2 .2 .2 .2 .3 .2 .2 .2 .2 .3 .3
.1 .1 .1 .2 .1 .1 .0 .0 .1 .1 .1 .1 .1 .1 .1 .1 .2 .1 .1 .2 .2 .2 .2 .2 .2 .1 .1 .1 .1 .2 .1 .1 .0 .1 .1 .1
.1 .1 .1 .1 .1 .0 .0 .0 .1 .1 .0 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .2 .1 .1 .1 .0 .1 .0 .0 .1 .0
.1 .0 .1 .1 .1 .0 .1 .0 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .0 .1 .1 .1 .1 .1 .1 .1 .1 .0 .0 .0 .0 .0
.0 .0 .0 .0 .1 .0 .1 .1 .1 .1 .1 .1 .1 .1 .1 .0 .1 .1 .1 .2 .1 .1 .1 .1 .1 .1 .1 .0 .1 .0 .0 .0 .0 .0 .0 .0
.0 .0 .1 .1 .1 .0 .0 .0 .0 .1 .1 .1 .1 .1 .1 .0 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .0 .0 .0 .0 .1 .0 .0 .0 .0 .0
.1 .1 .1 .1 .1 .1 .0 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .0 .1 .1 .1 .1 .1 .1 .1 .1 .1 .1 .0 .1
.1 .2 .2 .1 .2 .2 .1 .2 .1 .2 .2 .1 .1 .2 .2 .1 .2 .2 .2 .2 .1 .1 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .2 .2 .2 .2 .2 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .3 .3 .3 .3 .3
.4 .5 .4 .4 .4 .4 .3 .4 .4 .3 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .4 .4 .3 .3 .4
.4 .5 .5 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .4 .4 .4 .4
.4 .4 .4 .4 .3 .3 .3 .2 .2 .2 .2 .2 .2 .2 .2 .1 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .2 .3 .3 .3 .3 .3 .4 .4 .4
.2 .2 .2 .2 .2 .2 .1 .1 .1 .1 .1 .1 .1 .1 .0 .0 .0 .0 .0 .0 .0 .1 .0 .0 .0 .0 .0 .0 .0 .1 .1 .2 .2 .2 .2 .2
.3 .3 .3 .3 .3 .2 .2 .2 .3 .3 .2 .2 .2 .3 .2 .2 .2 .2 .2 .3 .3 .3 .3 .3 .3 .4 .3 .2 .2 .3 .3 .3 .3 .3 .3 .3

Figure 37. ATOVS SD O-B brightness temperature differences (deg C). JUNE 2005
Channel: AMSUA-7 (300 hPa)
NOAA15, using all observations



.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2
.3	.3	.3	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.4	.4	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.4	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.4	.4	.5	.5	.4	.4	.4
.4	.4	.4	.4	.4	.5	.4	.4	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.5	.5	.4	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.4	.4	.4
.5	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.5	.4	.5	.4	.5	.5	.5	.5	.5	.4	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.4	.4
.5	.5	.4	.4	.4	.4	.5	.5	.5	.5	.5	.4	.5	.4	.4	.4	.5	.4	.5	.5	.5	.4	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.4
.5	.5	.4	.4	.5	.4	.5	.5	.4	.5	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.4	.4	.4	.5	.5	.5	.5	.5	.5	.4	.5	.4	.5	.5	.5	.4
.4	.5	.4	.4	.4	.4	.5	.5	.4	.5	.4	.4	.4	.4	.4	.4	.4	.4	.5	.4	.4	.4	.4	.5	.5	.5	.4	.5	.4	.4	.4	.4	.5	.5	.5	.4
.4	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.4	.4
.4	.5	.5	.5	.4	.4	.4	.5	.5	.5	.5	.4	.4	.4	.4	.5	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.4
.4	.4	.4	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.6	.6	.6	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5

Figure 38. ATOVS MEAN O-B brightness temperature differences (deg C). JUNE 2005
Channel: AMSUA-9 (100 hPa)
NOAA15, using all observations



.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.2	.2	.2	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3
.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.5	.4	.4	.3	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.4	.4	.4	.5
.2	.2	.3	.3	.3	.3	.4	.4	.4	.4	.5	.5	.4	.3	.2	.2	.2	.2	.1	.2	.2	.3	.3	.3	.3	.3	.4	.4	.4	.3	.3	.3	.3	.3	.4	.3
.1	.1	.1	.2	.2	.2	.2	.2	.1	.1	.2	.2	.2	.2	.2	.0	.0	-.1	-.1	.0	.2	.2	.1	.2	.2	.2	.2	.2	.2	.2	.1	.1	.1	.2	.3	.2
.0	-.1	.0	.0	.0	.0	.0	-.1	-.2	-.2	-.1	-.1	-.1	.0	-.1	-.1	-.2	-.3	-.2	-.1	.1	.0	.0	.1	.0	.1	.1	.0	.0	.0	-.1	-.1	-.1	.0	.1	.0
-.3	-.3	-.2	-.1	-.1	-.2	-.3	-.3	-.4	-.4	-.3	-.2	-.2	-.2	-.2	-.3	-.3	-.3	-.3	-.2	.0	-.1	-.2	-.2	-.2	-.2	-.2	-.3	-.2	-.2	-.2	-.3	-.3	-.2	-.2	-.3
-.4	-.3	-.3	-.2	-.3	-.4	-.5	-.5	-.4	-.4	-.3	-.2	-.2	-.3	-.3	-.3	-.4	-.3	-.2	.0	-.1	-.3	-.4	-.4	-.4	-.4	-.4	-.5	-.5	-.5	-.3	-.4	-.4	-.3	-.3	-.4
-.5	-.5	-.5	-.4	-.5	-.5	-.6	-.5	-.5	-.5	-.4	-.3	-.3	-.3	-.4	-.4	-.4	-.3	-.3	-.2	-.4	-.5	-.4	-.4	-.4	-.3	-.3	-.4	-.4	-.4	-.4	-.5	-.4	-.4	-.5	-.5
-.7	-.6	-.6	-.6	-.6	-.6	-.6	-.6	-.5	-.5	-.5	-.5	-.4	-.5	-.6	-.6	-.6	-.5	-.5	-.6	-.8	-.7	-.5	-.5	-.4	-.4	-.3	-.3	-.3	-.4	-.5	-.6	-.6	-.7	-.7	-.6
-.7	-.7	-.6	-.6	-.6	-.5	-.6	-.5	-.5	-.5	-.5	-.5	-.4	-.5	-.6	-.6	-.6	-.5	-.6	-.7	-.7	-.7	-.6	-.5	-.5	-.4	-.4	-.3	-.4	-.4	-.5	-.6	-.6	-.7	-.7	-.6
-.5	-.5	-.5	-.5	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.4	-.5	-.4	-.5	-.5	-.5	-.4	-.4	-.4	-.4	-.4	-.5	-.5	-.5	-.5	-.5	-.5	-.5	-.4
-.2	-.2	-.3	-.3	-.2	-.1	-.2	-.2	-.3	-.3	-.3	-.4	-.4	-.3	-.2	-.3	-.2	-.2	-.3	-.3	-.3	-.3	-.2	-.2	-.2	-.3	-.2	-.3	-.3	-.3	-.3	-.2	-.3	-.3	-.2	-.2
.0	.1	.1	.1	.1	.1	.1	.0	.0	.0	-.1	-.2	-.2	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	.0	.0	.0	.0	.1	.2	.2	.2	.1	.1	.0	.0	.0	.0
.2	.3	.3	.3	.2	.2	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.0	.0	.0	.0	.1	.1	.1	.2	.2	.2	.3	.3	.4	.4	.4	.4	.3	.2	.1	.1
.2	.3	.3	.2	.2	.1	.0	.0	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.2	-.2	-.2	-.2	-.1	.0	.0	.1	.1	.1	.1	.1	.2	.3	.3	.3	.3	.2	.2	.1	.1
.0	.1	.1	.1	.0	-.1	-.2	-.3	-.4	-.4	-.4	-.4	-.4	-.5	-.5	-.6	-.6	-.6	-.6	-.5	-.5	-.5	-.4	-.4	-.4	-.4	-.3	-.3	-.2	-.1	-.1	-.1	-.1	-.1	-.1	-.1
-.4	-.4	-.3	-.3	-.3	-.4	-.4	-.5	-.6	-.6	-.6	-.7	-.7	-.7	-.8	-.9	-.9	-.9	-.9	-.9	-.8	-.8	-.8	-.8	-.9	-.8	-.8	-.8	-.8	-.7	-.6	-.6	-.5	-.5	-.5	-.4
-.5	-.5	-.5	-.5	-.5	-.5	-.5	-.5	-.6	-.6	-.6	-.6	-.6	-.7	-.7	-.7	-.7	-.8	-.8	-.8	-.7	-.7	-.7	-.7	-.7	-.7	-.8	-.8	-.8	-.7	-.6	-.5	-.5	-.5	-.5	-.5

Figure 39. ATOVS SD O-B brightness temperature differences (deg C). JUNE 2005
Channel: AMSUA-9 (100 hPa)
NOAA15, using all observations

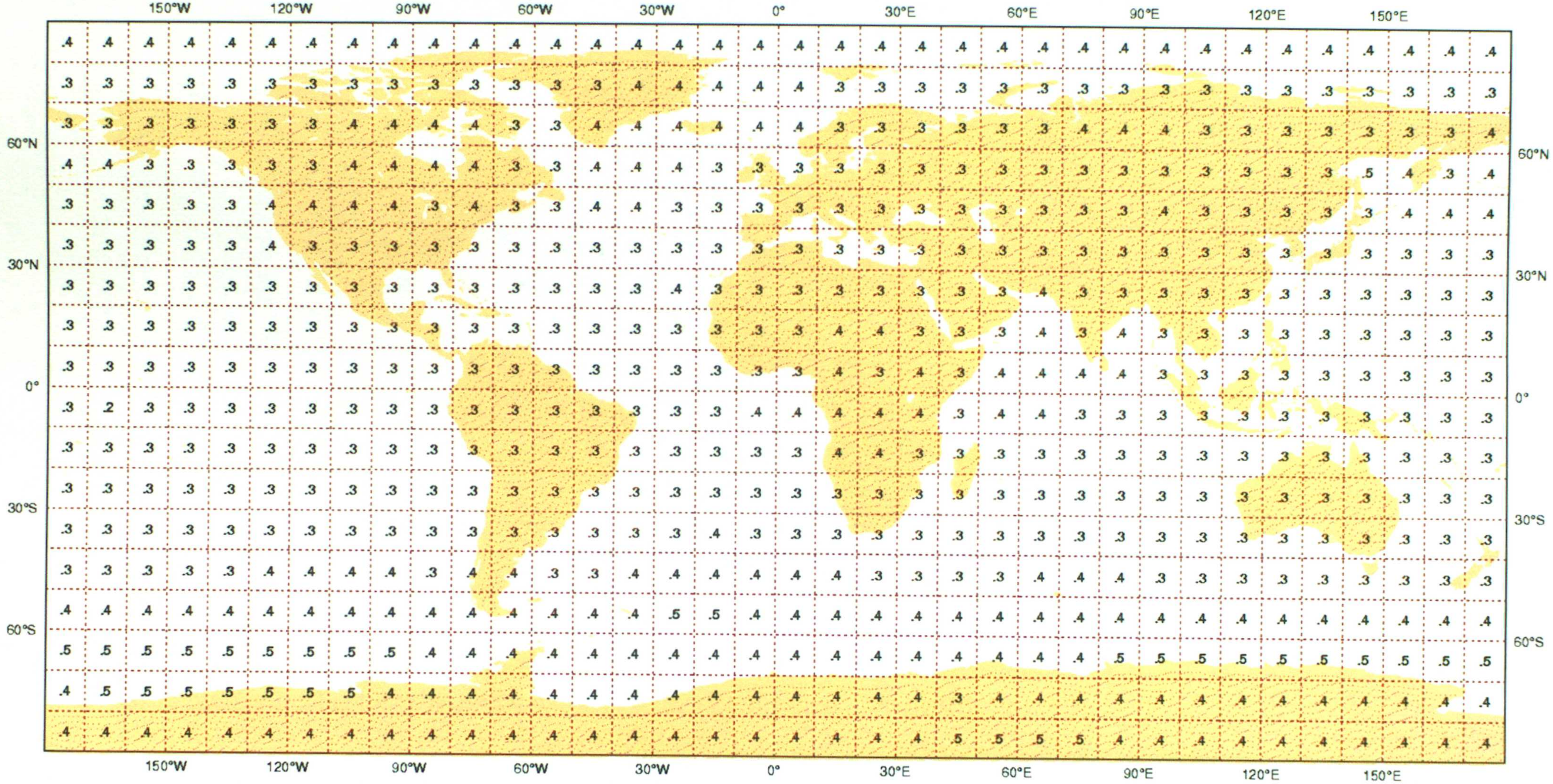
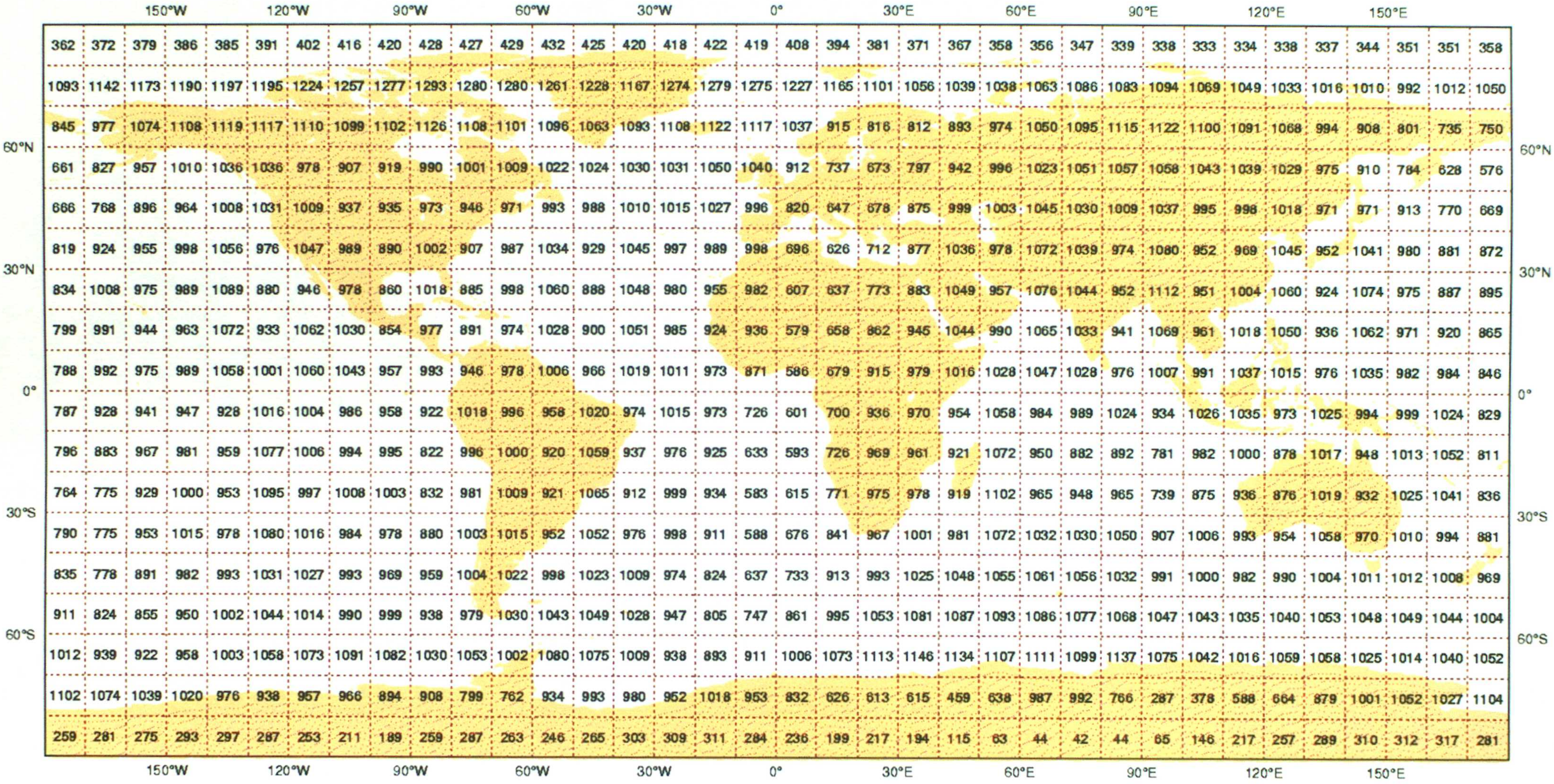
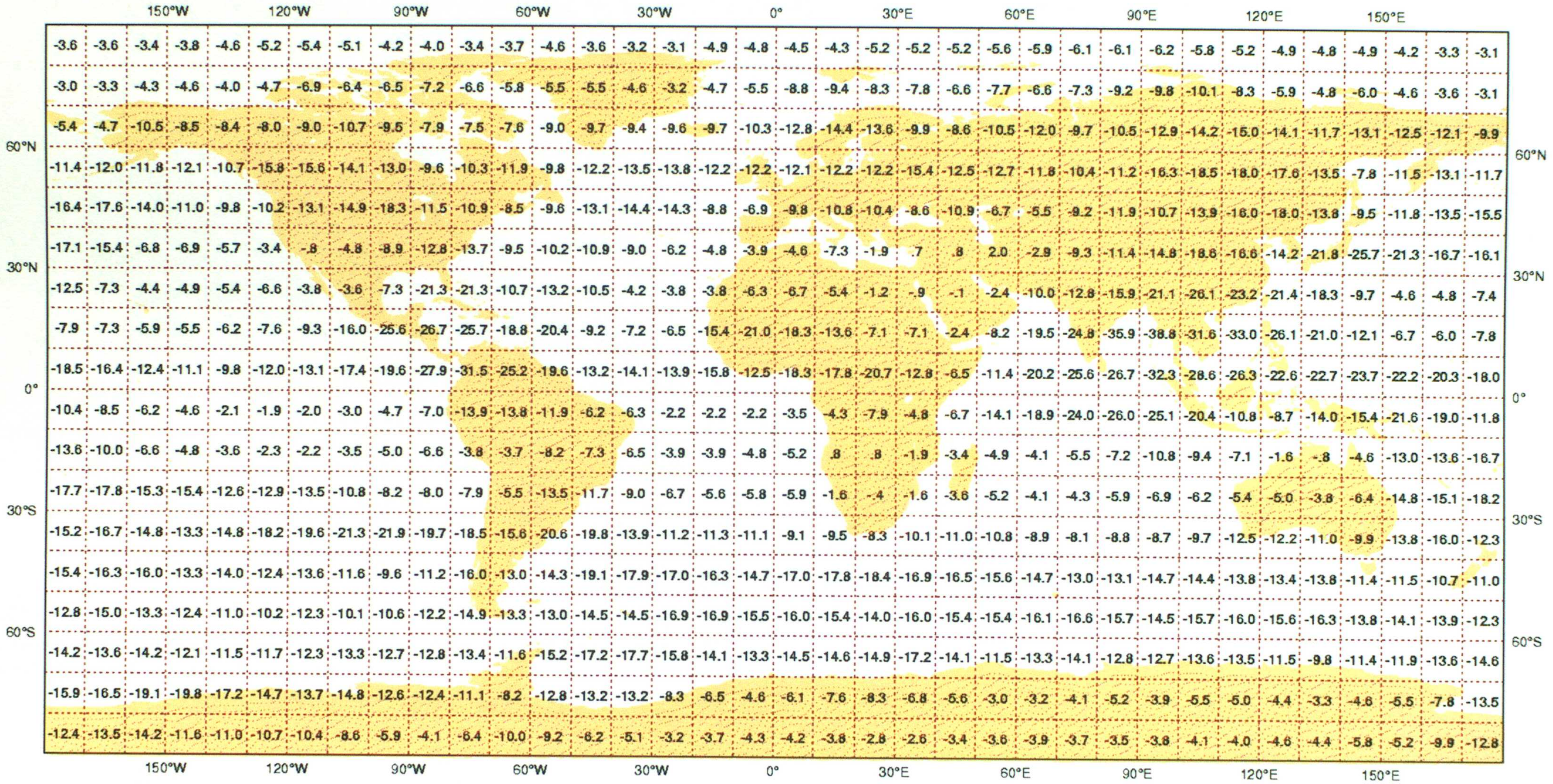

150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .3 .3 .4 .4 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .4
.4 .4 .3 .3 .3 .3 .3 .4 .4 .4 .4 .3 .3 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .5 .4 .3 .4
.3 .3 .3 .3 .3 .4 .4 .4 .4 .3 .4 .3 .3 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .4 .4 .4
.3 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .3 .3 .3 .4 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .4 .3 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .2 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .4 .4 .4 .3 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.3 .3 .3 .3 .3 .4 .4 .4 .4 .3 .4 .4 .3 .3 .4 .4 .4 .4 .4 .4 .3 .3 .3 .3 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .3 .3
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.5 .5 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .5 .5 .5 .5 .5 .5
.4 .5 .5 .5 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
150°W 120°W 90°W 60°W 30°W 0° 30°E 60°E 90°E 120°E 150°E
60°N 30°N 0° 30°S 60°S

Figure 40. ATOVS mean daily count. JUNE 2005
NOAA16, using all observations
Global average number of observations in 24 hours = 579049



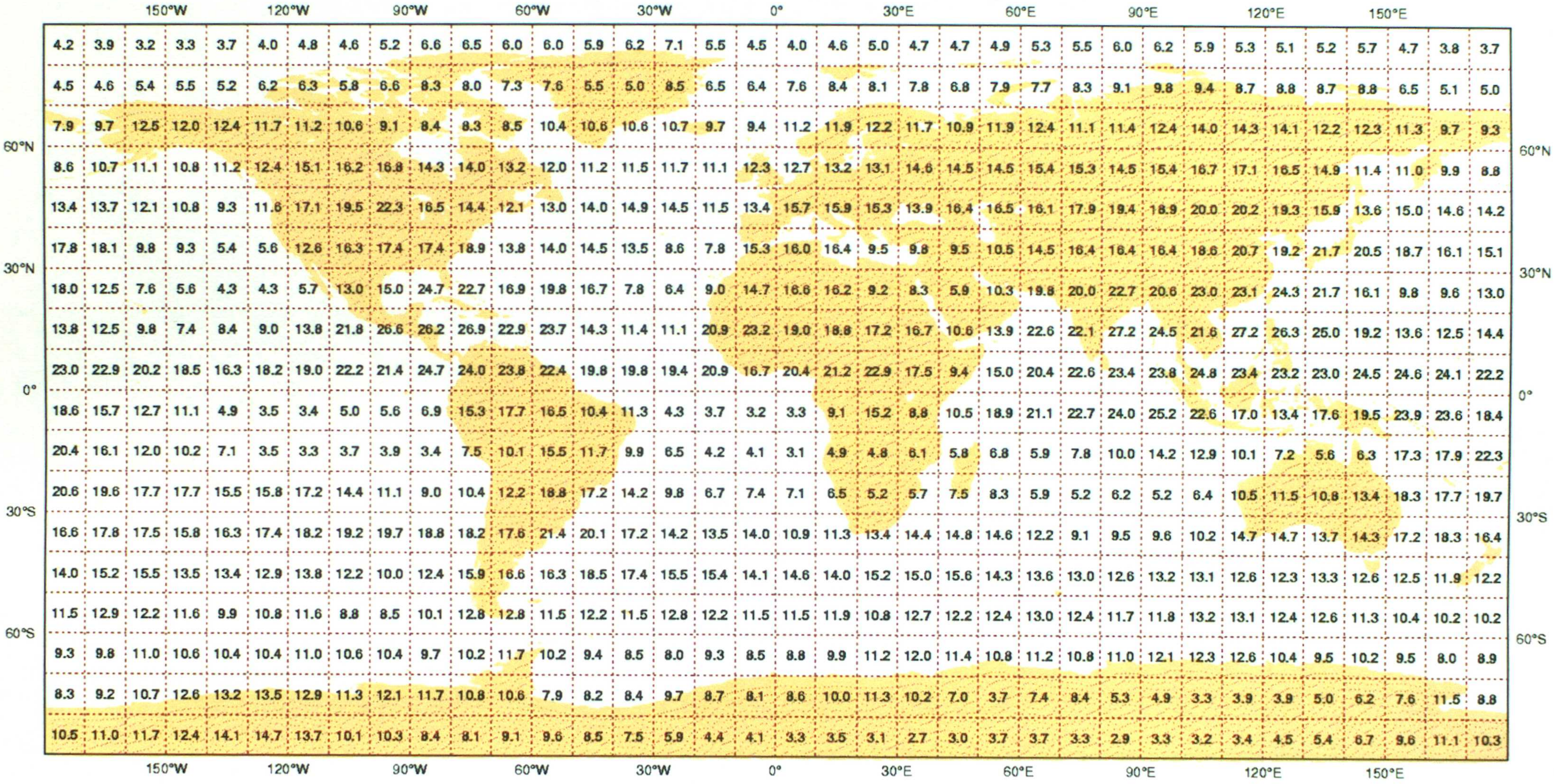
362	372	379	386	385	391	402	416	420	428	427	429	432	425	420	418	422	419	408	394	381	371	367	358	356	347	339	338	333	334	338	337	344	351	351	358
1093	1142	1173	1190	1197	1195	1224	1257	1277	1293	1280	1280	1261	1228	1167	1274	1279	1275	1227	1165	1101	1056	1039	1038	1063	1086	1083	1094	1069	1049	1033	1016	1010	992	1012	1050
845	977	1074	1108	1119	1117	1110	1099	1102	1126	1108	1101	1096	1063	1093	1108	1122	1117	1037	915	816	812	893	974	1050	1095	1115	1122	1100	1091	1068	994	908	801	735	750
661	827	957	1010	1036	1036	978	907	919	990	1001	1009	1022	1024	1030	1031	1050	1040	912	737	673	797	942	996	1023	1051	1057	1058	1043	1039	1029	975	910	784	628	576
666	768	896	964	1008	1031	1009	937	935	973	946	971	993	988	1010	1015	1027	996	820	647	678	875	999	1003	1045	1030	1009	1037	995	998	1018	971	971	913	770	669
819	924	955	998	1056	976	1047	989	890	1002	907	987	1034	929	1045	997	989	998	696	626	712	877	1036	978	1072	1039	974	1080	952	969	1045	952	1041	980	881	872
834	1008	975	989	1089	880	946	978	860	1018	885	998	1060	888	1048	980	955	982	607	637	773	883	1049	957	1076	1044	952	1112	951	1004	1060	924	1074	975	887	895
799	991	944	963	1072	933	1062	1030	854	977	891	974	1028	900	1051	985	924	936	579	658	862	945	1044	990	1065	1033	941	1069	961	1018	1050	936	1062	971	920	865
788	992	975	989	1058	1001	1060	1043	957	993	946	978	1006	966	1019	1011	973	871	586	679	915	979	1016	1028	1047	1028	976	1007	991	1037	1015	976	1035	982	984	846
787	928	941	947	928	1016	1004	986	958	922	1018	996	958	1020	974	1015	973	726	601	700	936	970	954	1058	984	989	1024	934	1026	1035	973	1025	994	999	1024	829
796	883	967	981	959	1077	1006	994	995	822	996	1000	920	1059	937	976	925	633	593	726	969	961	921	1072	950	882	892	781	982	1000	878	1017	948	1013	1052	811
764	775	929	1000	953	1095	997	1008	1003	832	981	1009	921	1065	912	999	934	583	615	771	975	978	919	1102	965	948	965	739	875	936	876	1019	932	1025	1041	836
790	775	953	1015	978	1080	1016	984	978	880	1003	1015	952	1052	976	998	911	588	676	841	967	1001	981	1072	1032	1030	1050	907	1006	993	954	1058	970	1010	994	881
835	778	891	982	993	1031	1027	993	969	959	1004	1022	998	1023	1009	974	824	637	733	913	993	1025	1048	1055	1061	1056	1032	991	1000	982	990	1004	1011	1012	1008	969
911	824	855	950	1002	1044	1014	990	999	938	979	1030	1043	1049	1028	947	805	747	861	995	1053	1081	1087	1093	1086	1077	1068	1047	1043	1035	1040	1053	1048	1049	1044	1004
1012	939	922	958	1003	1058	1073	1091	1082	1030	1053	1002	1080	1075	1009	938	893	911	1006	1073	1113	1146	1134	1107	1111	1099	1137	1075	1042	1016	1059	1058	1025	1014	1040	1052
1102	1074	1039	1020	976	938	957	966	894	908	799	762	934	993	980	952	1018	953	832	626	613	615	459	638	987	992	766	287	378	588	664	879	1001	1052	1027	1104
259	281	275	293	297	287	253	211	189	259	287	263	246	265	303	309	311	284	236	199	217	194	115	63	44	42	44	65	146	217	257	289	310	312	317	281

Figure 41. ATOVS MEAN O-B brightness temperature differences (deg C). JUNE 2005
Channel: HIRS8 (Surface)
NOAA16, using all observations



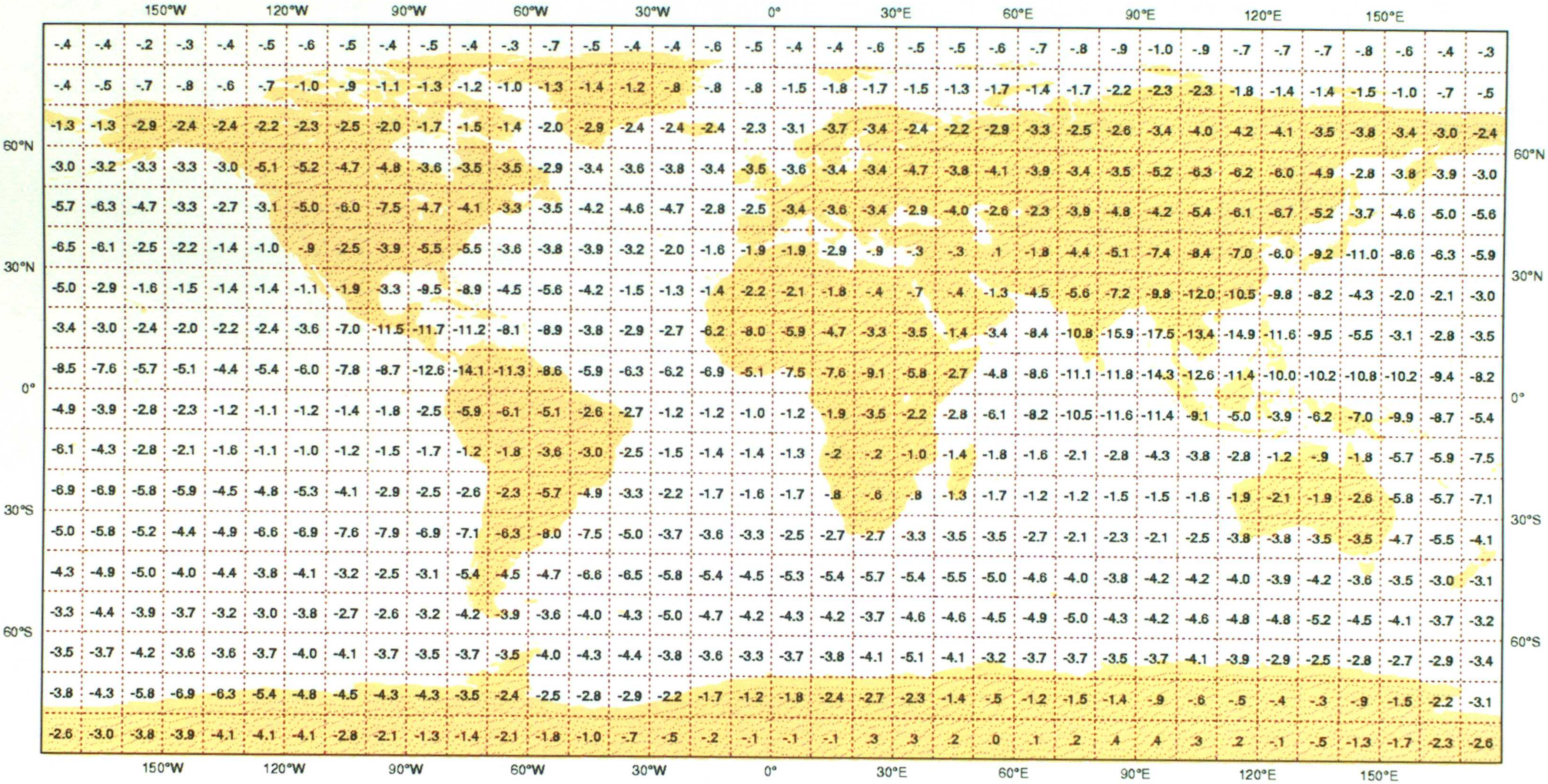
-3.6	-3.6	-3.4	-3.8	-4.6	-5.2	-5.4	-5.1	-4.2	-4.0	-3.4	-3.7	-4.6	-3.6	-3.2	-3.1	-4.9	-4.8	-4.5	-4.3	-5.2	-5.2	-5.2	-5.6	-5.9	-6.1	-6.1	-6.2	-5.8	-5.2	-4.9	-4.8	-4.9	-4.2	-3.3	-3.1
-3.0	-3.3	-4.3	-4.6	-4.0	-4.7	-6.9	-6.4	-6.5	-7.2	-6.6	-5.8	-5.5	-5.5	-4.6	-3.2	-4.7	-5.5	-8.8	-9.4	-8.3	-7.8	-6.6	-7.7	-6.6	-7.3	-9.2	-9.8	-10.1	-8.3	-5.9	-4.8	-6.0	-4.6	-3.6	-3.1
-5.4	-4.7	-10.5	-8.5	-8.4	-8.0	-9.0	-10.7	-9.5	-7.9	-7.5	-7.6	-9.0	-9.7	-9.4	-9.6	-9.7	-10.3	-12.8	-14.4	-13.6	-9.9	-8.6	-10.5	-12.0	-9.7	-10.5	-12.9	-14.2	-15.0	-14.1	-11.7	-13.1	-12.5	-12.1	-9.9
-11.4	-12.0	-11.8	-12.1	-10.7	-15.8	-15.6	-14.1	-13.0	-9.6	-10.3	-11.9	-9.8	-12.2	-13.5	-13.8	-12.2	-12.2	-12.1	-12.2	-12.2	-15.4	-12.5	-12.7	-11.8	-10.4	-11.2	-16.3	-18.5	-18.0	-17.6	-13.5	-7.8	-11.5	-13.1	-11.7
-16.4	-17.6	-14.0	-11.0	-9.8	-10.2	-13.1	-14.9	-18.3	-11.5	-10.9	-8.5	-9.6	-13.1	-14.4	-14.3	-8.8	-6.9	-9.8	-10.8	-10.4	-8.6	-10.9	-6.7	-5.5	-9.2	-11.9	-10.7	-13.9	-16.0	-18.0	-13.8	-9.5	-11.8	-13.5	-15.5
-17.1	-15.4	-6.8	-6.9	-5.7	-3.4	-.8	-4.8	-8.9	-12.8	-13.7	-9.5	-10.2	-10.9	-9.0	-6.2	-4.8	-3.9	-4.6	-7.3	-1.9	.7	.8	2.0	-2.9	-9.3	-11.4	-14.8	-18.6	-16.6	-14.2	-21.8	-25.7	-21.3	-16.7	-16.1
-12.5	-7.3	-4.4	-4.9	-5.4	-6.6	-3.8	-3.6	-7.3	-21.3	-21.3	-10.7	-13.2	-10.5	-4.2	-3.8	-3.8	-6.3	-6.7	-5.4	-1.2	-.9	-.1	-2.4	-10.0	-12.8	-15.9	-21.1	-26.1	-23.2	-21.4	-18.3	-9.7	-4.6	-4.8	-7.4
-7.9	-7.3	-5.9	-5.5	-6.2	-7.6	-9.3	-16.0	-25.6	-26.7	-25.7	-18.8	-20.4	-9.2	-7.2	-6.5	-15.4	-21.0	-18.3	-13.6	-7.1	-7.1	-2.4	-8.2	-19.5	-24.8	-35.9	-38.8	-31.6	-33.0	-26.1	-21.0	-12.1	-6.7	-6.0	-7.8
-18.5	-16.4	-12.4	-11.1	-9.8	-12.0	-13.1	-17.4	-19.6	-27.9	-31.5	-25.2	-19.6	-13.2	-14.1	-13.9	-15.8	-12.5	-18.3	-17.8	-20.7	-12.8	-6.5	-11.4	-20.2	-25.6	-26.7	-32.3	-28.6	-26.3	-22.6	-22.7	-23.7	-22.2	-20.3	-18.0
-10.4	-8.5	-6.2	-4.6	-2.1	-1.9	-2.0	-3.0	-4.7	-7.0	-13.9	-13.8	-11.9	-6.2	-6.3	-2.2	-2.2	-2.2	-3.5	-4.3	-7.9	-4.8	-6.7	-14.1	-18.9	-24.0	-26.0	-25.1	-20.4	-10.8	-8.7	-14.0	-15.4	-21.6	-19.0	-11.8
-13.6	-10.0	-6.6	-4.8	-3.6	-2.3	-2.2	-3.5	-5.0	-6.6	-3.8	-3.7	-8.2	-7.3	-6.5	-3.9	-3.9	-4.8	-5.2	.8	.8	-1.9	-3.4	-4.9	-4.1	-5.5	-7.2	-10.8	-9.4	-7.1	-1.6	-.8	-4.6	-13.0	-13.6	-16.7
-17.7	-17.8	-15.3	-15.4	-12.6	-12.9	-13.5	-10.8	-8.2	-8.0	-7.9	-5.5	-13.5	-11.7	-9.0	-6.7	-5.6	-5.8	-5.9	-1.6	-.4	-1.6	-3.6	-5.2	-4.1	-4.3	-5.9	-6.9	-6.2	-5.4	-5.0	-3.8	-6.4	-14.8	-15.1	-18.2
-15.2	-16.7	-14.8	-13.3	-14.8	-18.2	-19.6	-21.3	-21.9	-19.7	-18.5	-15.6	-20.6	-19.8	-13.9	-11.2	-11.3	-11.1	-9.1	-9.5	-8.3	-10.1	-11.0	-10.8	-8.9	-8.1	-8.8	-8.7	-9.7	-12.5	-12.2	-11.0	-9.9	-13.8	-16.0	-12.3
-15.4	-16.3	-16.0	-13.3	-14.0	-12.4	-13.6	-11.6	-9.6	-11.2	-16.0	-13.0	-14.3	-19.1	-17.9	-17.0	-16.3	-14.7	-17.0	-17.8	-18.4	-16.9	-16.5	-15.6	-14.7	-13.0	-13.1	-14.7	-14.4	-13.8	-13.4	-13.8	-11.4	-11.5	-10.7	-11.0
-12.8	-15.0	-13.3	-12.4	-11.0	-10.2	-12.3	-10.1	-10.6	-12.2	-14.9	-13.3	-13.0	-14.5	-14.5	-16.9	-16.9	-15.5	-16.0	-15.4	-14.0	-16.0	-15.4	-15.4	-16.1	-16.6	-15.7	-14.5	-15.7	-16.0	-15.6	-16.3	-13.8	-14.1	-13.9	-12.3
-14.2	-13.6	-14.2	-12.1	-11.5	-11.7	-12.3	-13.3	-12.7	-12.8	-13.4	-11.6	-15.2	-17.2	-17.7	-15.8	-14.1	-13.3	-14.5	-14.6	-14.9	-17.2	-14.1	-11.5	-13.3	-14.1	-12.8	-12.7	-13.6	-13.5	-11.5	-9.8	-11.4	-11.9	-13.6	-14.6
-15.9	-16.5	-19.1	-19.8	-17.2	-14.7	-13.7	-14.8	-12.6	-12.4	-11.1	-8.2	-12.8	-13.2	-13.2	-8.3	-6.5	-4.6	-6.1	-7.6	-8.3	-6.8	-5.6	-3.0	-3.2	-4.1	-5.2	-3.9	-5.5	-5.0	-4.4	-3.3	-4.6	-5.5	-7.8	-13.5
-12.4	-13.5	-14.2	-11.6	-11.0	-10.7	-10.4	-8.6	-5.9	-4.1	-6.4	-10.0	-9.2	-6.2	-5.1	-3.2	-3.7	-4.3	-4.2	-3.8	-2.8	-2.6	-3.4	-3.6	-3.9	-3.7	-3.5	-3.8	-4.1	-4.0	-4.6	-4.4	-5.8	-5.2	-9.9	-12.8

Figure 42. ATOVS SD O-B brightness temperature differences (deg C). JUNE 2005
Channel: HIRS8 (Surface)
NOAA16, using all observations



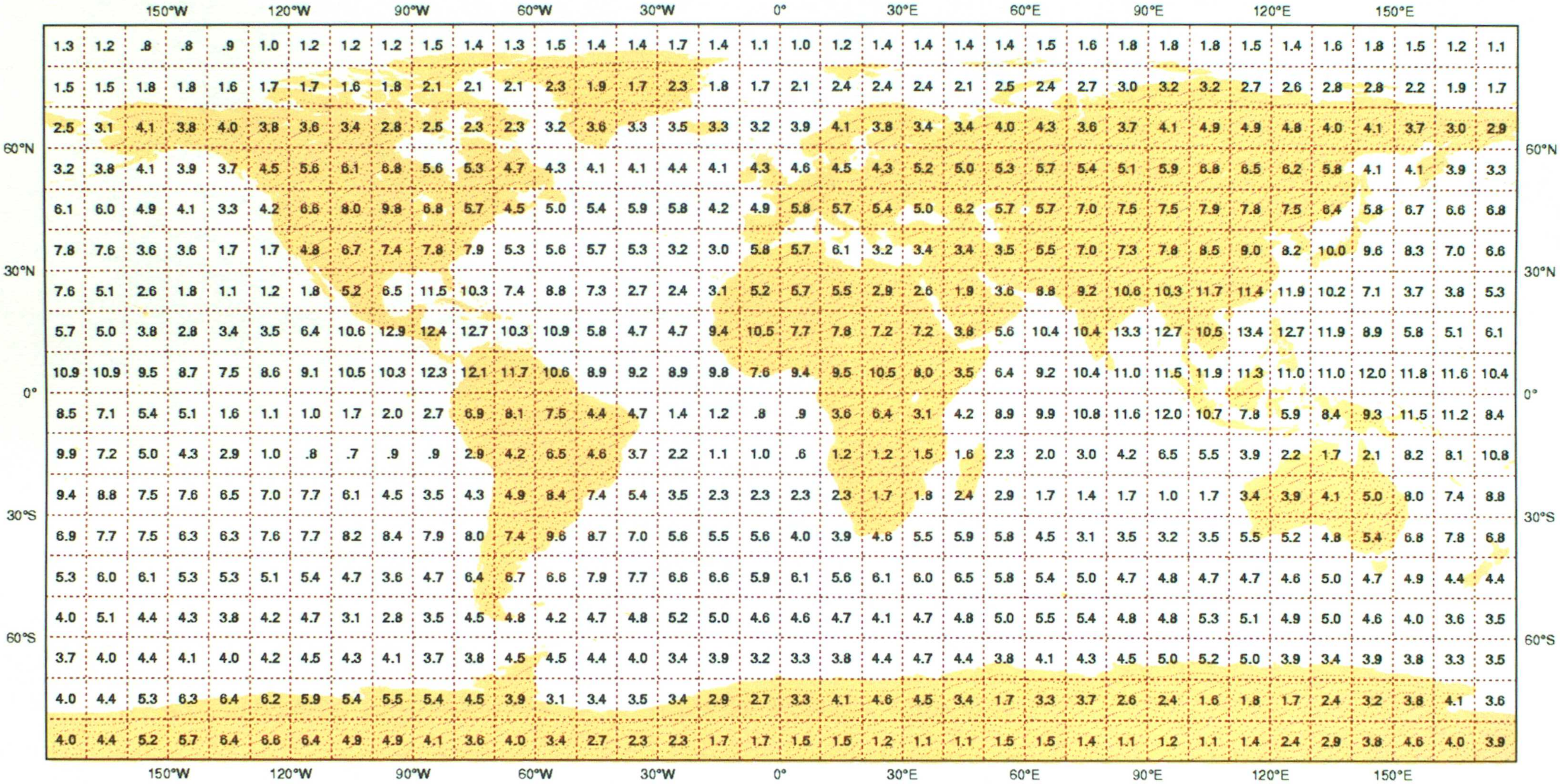
4.2	3.9	3.2	3.3	3.7	4.0	4.8	4.6	5.2	6.6	6.5	6.0	6.0	5.9	6.2	7.1	5.5	4.5	4.0	4.6	5.0	4.7	4.7	4.9	5.3	5.5	6.0	6.2	5.9	5.3	5.1	5.2	5.7	4.7	3.8	3.7
4.5	4.6	5.4	5.5	5.2	6.2	6.3	5.8	6.6	8.3	8.0	7.3	7.6	5.5	5.0	8.5	6.5	6.4	7.6	8.4	8.1	7.8	6.8	7.9	7.7	8.3	9.1	9.8	9.4	8.7	8.8	8.7	8.8	6.5	5.1	5.0
7.9	9.7	12.5	12.0	12.4	11.7	11.2	10.6	9.1	8.4	8.3	8.5	10.4	10.6	10.6	10.7	9.7	9.4	11.2	11.9	12.2	11.7	10.9	11.9	12.4	11.1	11.4	12.4	14.0	14.3	14.1	12.2	12.3	11.3	9.7	9.3
8.6	10.7	11.1	10.8	11.2	12.4	15.1	16.2	16.8	14.3	14.0	13.2	12.0	11.2	11.5	11.7	11.1	12.3	12.7	13.2	13.1	14.6	14.5	14.5	15.4	15.3	14.5	15.4	16.7	17.1	16.5	14.9	11.4	11.0	9.9	8.8
13.4	13.7	12.1	10.8	9.3	11.6	17.1	19.5	22.3	16.5	14.4	12.1	13.0	14.0	14.9	14.5	11.5	13.4	15.7	15.9	15.3	13.9	16.4	16.5	16.1	17.9	19.4	18.9	20.0	20.2	19.3	15.9	13.6	15.0	14.6	14.2
17.8	18.1	9.8	9.3	5.4	5.6	12.6	16.3	17.4	17.4	18.9	13.8	14.0	14.5	13.5	8.6	7.8	15.3	16.0	16.4	9.5	9.8	9.5	10.5	14.5	16.4	16.4	16.4	18.6	20.7	19.2	21.7	20.5	18.7	16.1	15.1
18.0	12.5	7.6	5.6	4.3	4.3	5.7	13.0	15.0	24.7	22.7	16.9	19.8	16.7	7.8	6.4	9.0	14.7	16.6	16.2	9.2	8.3	5.9	10.3	19.8	20.0	22.7	20.6	23.0	23.1	24.3	21.7	16.1	9.8	9.6	13.0
13.8	12.5	9.8	7.4	8.4	9.0	13.8	21.8	26.6	26.2	26.9	22.9	23.7	14.3	11.4	11.1	20.9	23.2	19.0	18.8	17.2	16.7	10.6	13.9	22.6	22.1	27.2	24.5	21.6	27.2	26.3	25.0	19.2	13.6	12.5	14.4
23.0	22.9	20.2	18.5	16.3	18.2	19.0	22.2	21.4	24.7	24.0	23.8	22.4	19.8	19.8	19.4	20.9	16.7	20.4	21.2	22.9	17.5	9.4	15.0	20.4	22.6	23.4	23.8	24.8	23.4	23.2	23.0	24.5	24.6	24.1	22.2
18.6	15.7	12.7	11.1	4.9	3.5	3.4	5.0	5.6	6.9	15.3	17.7	16.5	10.4	11.3	4.3	3.7	3.2	3.3	9.1	15.2	8.8	10.5	18.9	21.1	22.7	24.0	25.2	22.6	17.0	13.4	17.6	19.5	23.9	23.6	18.4
20.4	16.1	12.0	10.2	7.1	3.5	3.3	3.7	3.9	3.4	7.5	10.1	15.5	11.7	9.9	6.5	4.2	4.1	3.1	4.9	4.8	6.1	5.8	6.8	5.9	7.8	10.0	14.2	12.9	10.1	7.2	5.6	6.3	17.3	17.9	22.3
20.6	19.6	17.7	17.7	15.5	15.8	17.2	14.4	11.1	9.0	10.4	12.2	18.8	17.2	14.2	9.8	6.7	7.4	7.1	6.5	5.2	5.7	7.5	8.3	5.9	5.2	6.2	5.2	6.4	10.5	11.5	10.8	13.4	18.3	17.7	19.7
16.6	17.8	17.5	15.8	16.3	17.4	18.2	19.2	19.7	18.8	18.2	17.6	21.4	20.1	17.2	14.2	13.5	14.0	10.9	11.3	13.4	14.4	14.8	14.6	12.2	9.1	9.5	9.6	10.2	14.7	14.7	13.7	14.3	17.2	18.3	16.4
14.0	15.2	15.5	13.5	13.4	12.9	13.8	12.2	10.0	12.4	15.9	16.6	16.3	18.5	17.4	15.5	15.4	14.1	14.6	14.0	15.2	15.0	15.6	14.3	13.6	13.0	12.6	13.2	13.1	12.6	12.3	13.3	12.6	12.5	11.9	12.2
11.5	12.9	12.2	11.6	9.9	10.8	11.6	8.8	8.5	10.1	12.8	12.8	11.5	12.2	11.5	12.8	12.2	11.5	11.5	11.9	10.8	12.7	12.2	12.4	13.0	12.4	11.7	11.8	13.2	13.1	12.4	12.6	11.3	10.4	10.2	10.2
9.3	9.8	11.0	10.6	10.4	10.4	11.0	10.6	10.4	9.7	10.2	11.7	10.2	9.4	8.5	8.0	9.3	8.5	8.8	9.9	11.2	12.0	11.4	10.8	11.2	10.8	11.0	12.1	12.3	12.6	10.4	9.5	10.2	9.5	8.0	8.9
8.3	9.2	10.7	12.6	13.2	13.5	12.9	11.3	12.1	11.7	10.8	10.6	7.9	8.2	8.4	9.7	8.7	8.1	8.6	10.0	11.3	10.2	7.0	3.7	7.4	8.4	5.3	4.9	3.3	3.9	3.9	5.0	6.2	7.6	11.5	8.8
10.5	11.0	11.7	12.4	14.1	14.7	13.7	10.1	10.3	8.4	8.1	9.1	9.6	8.5	7.5	5.9	4.4	4.1	3.3	3.5	3.1	2.7	3.0	3.7	3.7	3.3	2.9	3.3	3.2	3.4	4.5	5.4	6.7	9.6	11.1	10.3

Figure 43. ATOVS MEAN O-B brightness temperature differences (deg C). JUNE 2005
Channel: HIRS15 (700 hPa)
NOAA16, using all observations



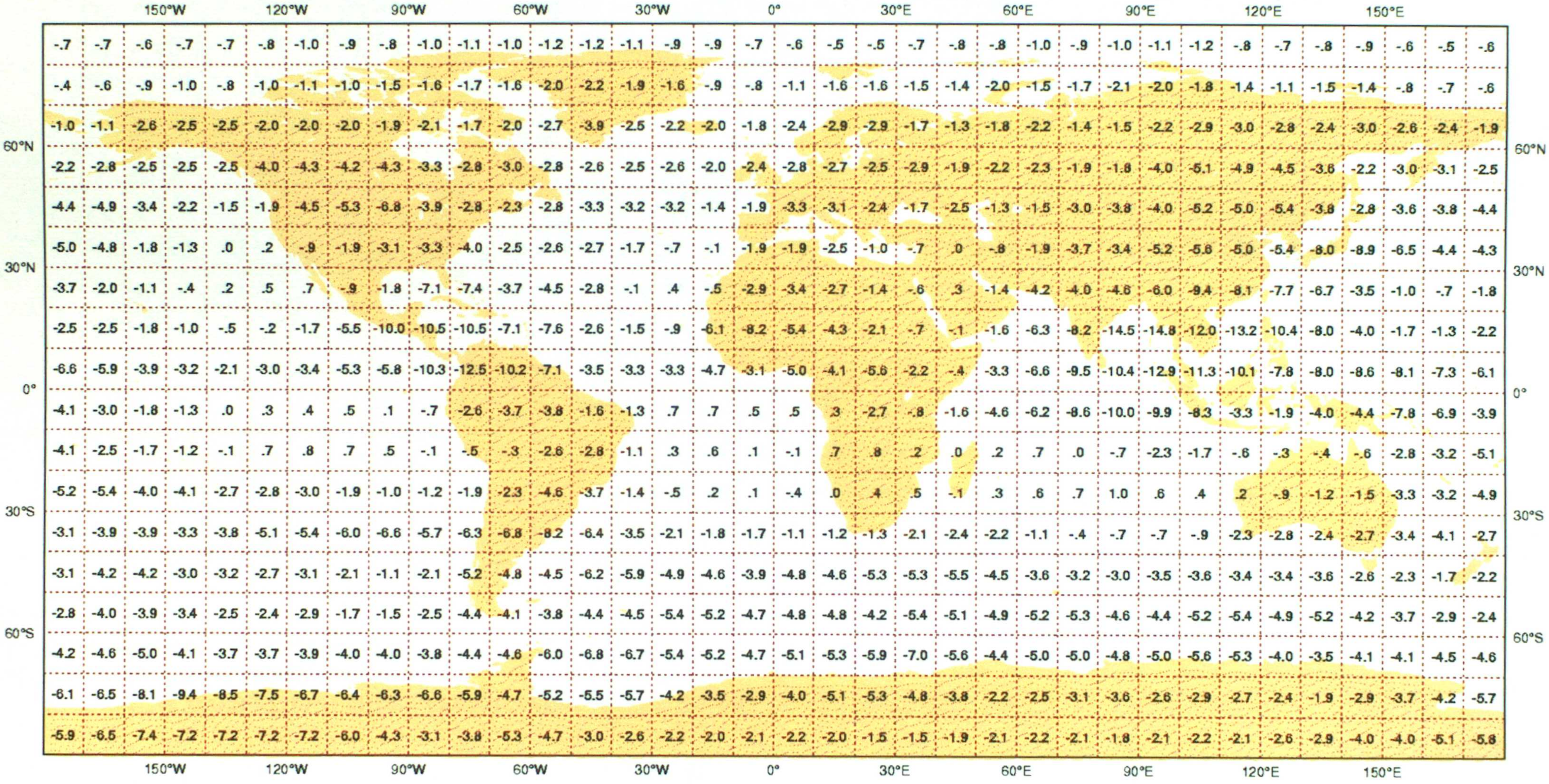
-.4	-.4	-.2	-.3	-.4	-.5	-.6	-.5	-.4	-.5	-.4	-.3	-.7	-.5	-.4	-.4	-.6	-.5	-.4	-.4	-.6	-.5	-.5	-.6	-.7	-.8	-.9	-1.0	-.9	-.7	-.7	-.7	-.8	-.6	-.4	-.3
-.4	-.5	-.7	-.8	-.6	-.7	-1.0	-.9	-1.1	-1.3	-1.2	-1.0	-1.3	-1.4	-1.2	-.8	-.8	-.8	-1.5	-1.8	-1.7	-1.5	-1.3	-1.7	-1.4	-1.7	-2.2	-2.3	-2.3	-1.8	-1.4	-1.4	-1.5	-1.0	-.7	-.5
-1.3	-1.3	-2.9	-2.4	-2.4	-2.2	-2.3	-2.5	-2.0	-1.7	-1.5	-1.4	-2.0	-2.9	-2.4	-2.4	-2.4	-2.3	-3.1	-3.7	-3.4	-2.4	-2.2	-2.9	-3.3	-2.5	-2.6	-3.4	-4.0	-4.2	-4.1	-3.5	-3.8	-3.4	-3.0	-2.4
-3.0	-3.2	-3.3	-3.3	-3.0	-5.1	-5.2	-4.7	-4.8	-3.6	-3.5	-3.5	-2.9	-3.4	-3.6	-3.8	-3.4	-3.5	-3.6	-3.4	-3.4	-4.7	-3.8	-4.1	-3.9	-3.4	-3.5	-5.2	-6.3	-6.2	-6.0	-4.9	-2.8	-3.8	-3.9	-3.0
-5.7	-6.3	-4.7	-3.3	-2.7	-3.1	-5.0	-6.0	-7.5	-4.7	-4.1	-3.3	-3.5	-4.2	-4.6	-4.7	-2.8	-2.5	-3.4	-3.6	-3.4	-2.9	-4.0	-2.6	-2.3	-3.9	-4.8	-4.2	-5.4	-6.1	-6.7	-5.2	-3.7	-4.6	-5.0	-5.6
-6.5	-6.1	-2.5	-2.2	-1.4	-1.0	-.9	-2.5	-3.9	-5.5	-5.5	-3.6	-3.8	-3.9	-3.2	-2.0	-1.6	-1.9	-1.9	-2.9	-.9	-.3	-.3	.1	-1.8	-4.4	-5.1	-7.4	-8.4	-7.0	-6.0	-9.2	-11.0	-8.6	-6.3	-5.9
-5.0	-2.9	-1.6	-1.5	-1.4	-1.4	-1.1	-1.9	-3.3	-9.5	-8.9	-4.5	-5.6	-4.2	-1.5	-1.3	-1.4	-2.2	-2.1	-1.8	-.4	-.7	-.4	-1.3	-4.5	-5.6	-7.2	-9.8	-12.0	-10.5	-9.8	-8.2	-4.3	-2.0	-2.1	-3.0
-3.4	-3.0	-2.4	-2.0	-2.2	-2.4	-3.6	-7.0	-11.5	-11.7	-11.2	-8.1	-8.9	-3.8	-2.9	-2.7	-6.2	-8.0	-5.9	-4.7	-3.3	-3.5	-1.4	-3.4	-8.4	-10.8	-15.9	-17.5	-13.4	-14.9	-11.6	-9.5	-5.5	-3.1	-2.8	-3.5
-8.5	-7.6	-5.7	-5.1	-4.4	-5.4	-6.0	-7.8	-8.7	-12.6	-14.1	-11.3	-8.6	-5.9	-6.3	-6.2	-6.9	-5.1	-7.5	-7.6	-9.1	-5.8	-2.7	-4.8	-8.6	-11.1	-11.8	-14.3	-12.6	-11.4	-10.0	-10.2	-10.8	-10.2	-9.4	-8.2
-4.9	-3.9	-2.8	-2.3	-1.2	-1.1	-1.2	-1.4	-1.8	-2.5	-5.9	-6.1	-5.1	-2.6	-2.7	-1.2	-1.2	-1.0	-1.2	-1.9	-3.5	-2.2	-2.8	-6.1	-8.2	-10.5	-11.6	-11.4	-9.1	-5.0	-3.9	-6.2	-7.0	-9.9	-8.7	-5.4
-6.1	-4.3	-2.8	-2.1	-1.6	-1.1	-1.0	-1.2	-1.5	-1.7	-1.2	-1.8	-3.6	-3.0	-2.5	-1.5	-1.4	-1.4	-1.3	-.2	-.2	-1.0	-1.4	-1.8	-1.6	-2.1	-2.8	-4.3	-3.8	-2.8	-1.2	-.9	-1.8	-5.7	-5.9	-7.5
-6.9	-6.9	-5.8	-5.9	-4.5	-4.8	-5.3	-4.1	-2.9	-2.5	-2.6	-2.3	-5.7	-4.9	-3.3	-2.2	-1.7	-1.6	-1.7	-.8	-.6	-.8	-1.3	-1.7	-1.2	-1.2	-1.5	-1.5	-1.6	-1.9	-2.1	-1.9	-2.6	-5.8	-5.7	-7.1
-5.0	-5.8	-5.2	-4.4	-4.9	-6.6	-6.9	-7.6	-7.9	-6.9	-7.1	-6.3	-8.0	-7.5	-5.0	-3.7	-3.6	-3.3	-2.5	-2.7	-2.7	-3.3	-3.5	-3.5	-2.7	-2.1	-2.3	-2.1	-2.5	-3.8	-3.8	-3.5	-3.5	-4.7	-5.5	-4.1
-4.3	-4.9	-5.0	-4.0	-4.4	-3.8	-4.1	-3.2	-2.5	-3.1	-5.4	-4.5	-4.7	-6.6	-6.5	-5.8	-5.4	-4.5	-5.3	-5.4	-5.7	-5.4	-5.5	-5.0	-4.6	-4.0	-3.8	-4.2	-4.2	-4.0	-3.9	-4.2	-3.6	-3.5	-3.0	-3.1
-3.3	-4.4	-3.9	-3.7	-3.2	-3.0	-3.8	-2.7	-2.6	-3.2	-4.2	-3.9	-3.6	-4.0	-4.3	-5.0	-4.7	-4.2	-4.3	-4.2	-3.7	-4.6	-4.6	-4.5	-4.9	-5.0	-4.3	-4.2	-4.6	-4.8	-4.8	-5.2	-4.5	-4.1	-3.7	-3.2
-3.5	-3.7	-4.2	-3.6	-3.6	-3.7	-4.0	-4.1	-3.7	-3.5	-3.7	-3.5	-4.0	-4.3	-4.4	-3.8	-3.6	-3.3	-3.7	-3.8	-4.1	-5.1	-4.1	-3.2	-3.7	-3.7	-3.5	-3.7	-4.1	-3.9	-2.9	-2.5	-2.8	-2.7	-2.9	-3.4
-3.8	-4.3	-5.8	-6.9	-6.3	-5.4	-4.8	-4.5	-4.3	-4.3	-3.5	-2.4	-2.5	-2.8	-2.9	-2.2	-1.7	-1.2	-1.8	-2.4	-2.7	-2.3	-1.4	-.5	-1.2	-1.5	-1.4	-.9	-.6	-.5	-.4	-.3	-.9	-1.5	-2.2	-3.1
-2.6	-3.0	-3.8	-3.9	-4.1	-4.1	-4.1	-2.8	-2.1	-1.3	-1.4	-2.1	-1.8	-1.0	-.7	-.5	-.2	-.1	-.1	-.1	.3	.3	.2	.0	.1	.2	.4	.4	.3	.2	-.1	-.5	-1.3	-1.7	-2.3	-2.6

Figure 44. ATOVS SD O-B brightness temperature differences (deg C). JUNE 2005
Channel: HIRS15 (700 hPa)
NOAA16, using all observations



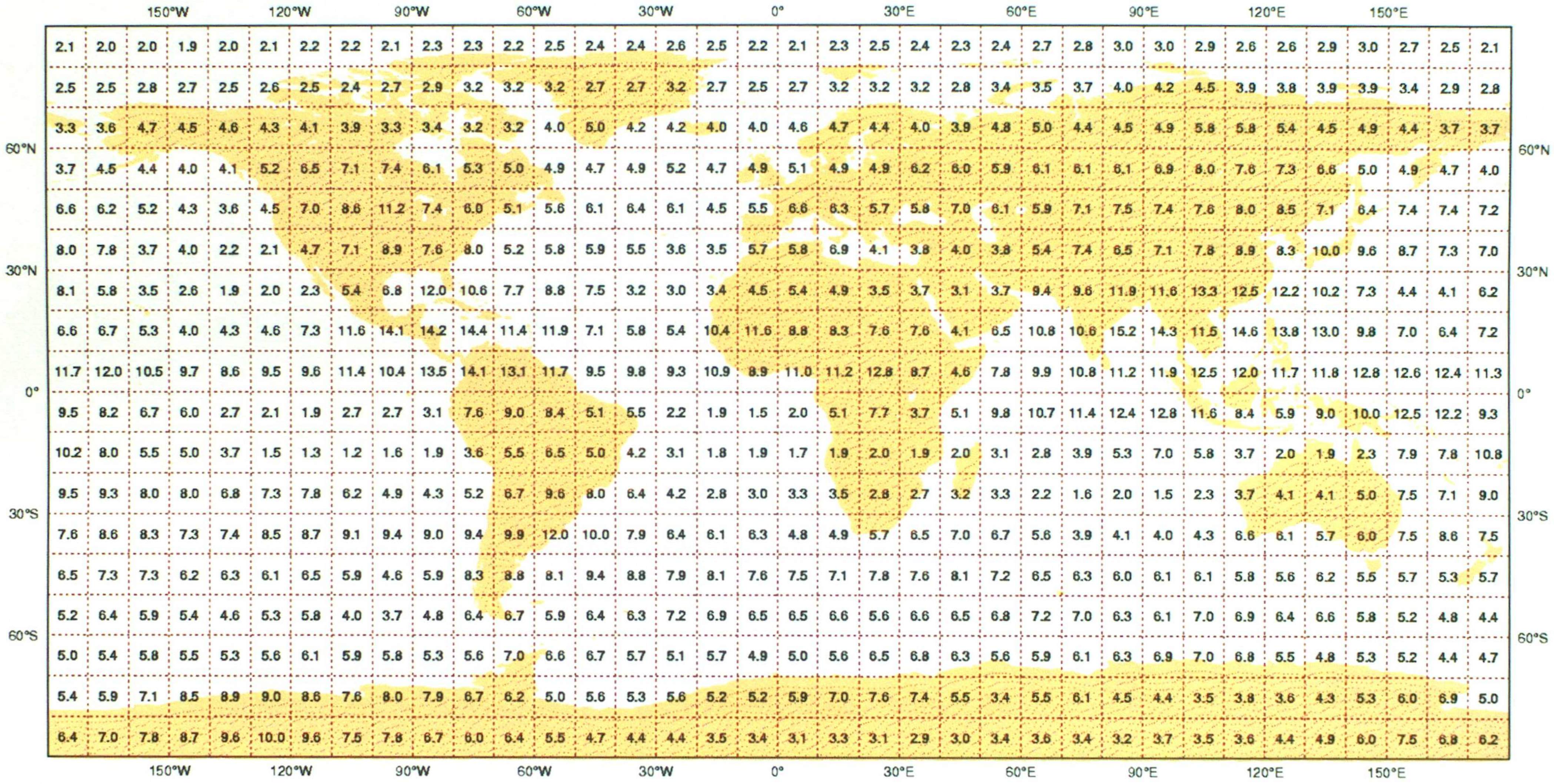
1.3	1.2	.8	.8	.9	1.0	1.2	1.2	1.2	1.5	1.4	1.3	1.5	1.4	1.4	1.7	1.4	1.1	1.0	1.2	1.4	1.4	1.4	1.4	1.5	1.6	1.8	1.8	1.8	1.5	1.4	1.6	1.8	1.5	1.2	1.1
1.5	1.5	1.8	1.8	1.6	1.7	1.7	1.6	1.8	2.1	2.1	2.1	2.3	1.9	1.7	2.3	1.8	1.7	2.1	2.4	2.4	2.4	2.1	2.5	2.4	2.7	3.0	3.2	3.2	2.7	2.6	2.8	2.8	2.2	1.9	1.7
2.5	3.1	4.1	3.8	4.0	3.8	3.6	3.4	2.8	2.5	2.3	2.3	3.2	3.6	3.3	3.5	3.3	3.2	3.9	4.1	3.8	3.4	3.4	4.0	4.3	3.6	3.7	4.1	4.9	4.9	4.8	4.0	4.1	3.7	3.0	2.9
3.2	3.8	4.1	3.9	3.7	4.5	5.6	6.1	6.8	5.6	5.3	4.7	4.3	4.1	4.1	4.4	4.1	4.3	4.6	4.5	4.3	5.2	5.0	5.3	5.7	5.4	5.1	5.9	6.8	6.5	6.2	5.8	4.1	4.1	3.9	3.3
6.1	6.0	4.9	4.1	3.3	4.2	6.6	8.0	9.8	6.8	5.7	4.5	5.0	5.4	5.9	5.8	4.2	4.9	5.8	5.7	5.4	5.0	6.2	5.7	5.7	7.0	7.5	7.5	7.9	7.8	7.5	6.4	5.8	6.7	6.6	6.8
7.8	7.6	3.6	3.6	1.7	1.7	4.8	6.7	7.4	7.8	7.9	5.3	5.6	5.7	5.3	3.2	3.0	5.8	5.7	6.1	3.2	3.4	3.4	3.5	5.5	7.0	7.3	7.8	8.5	9.0	8.2	10.0	9.6	8.3	7.0	6.6
7.6	5.1	2.6	1.8	1.1	1.2	1.8	5.2	6.5	11.5	10.3	7.4	8.8	7.3	2.7	2.4	3.1	5.2	5.7	5.5	2.9	2.6	1.9	3.6	8.8	9.2	10.6	10.3	11.7	11.4	11.9	10.2	7.1	3.7	3.8	5.3
5.7	5.0	3.8	2.8	3.4	3.5	6.4	10.6	12.9	12.4	12.7	10.3	10.9	5.8	4.7	4.7	9.4	10.5	7.7	7.8	7.2	7.2	3.8	5.6	10.4	10.4	13.3	12.7	10.5	13.4	12.7	11.9	8.9	5.8	5.1	6.1
10.9	10.9	9.5	8.7	7.5	8.6	9.1	10.5	10.3	12.3	12.1	11.7	10.6	8.9	9.2	8.9	9.8	7.6	9.4	9.5	10.5	8.0	3.5	6.4	9.2	10.4	11.0	11.5	11.9	11.3	11.0	11.0	12.0	11.8	11.6	10.4
8.5	7.1	5.4	5.1	1.6	1.1	1.0	1.7	2.0	2.7	6.9	8.1	7.5	4.4	4.7	1.4	1.2	.8	.9	3.6	6.4	3.1	4.2	8.9	9.9	10.8	11.6	12.0	10.7	7.8	5.9	8.4	9.3	11.5	11.2	8.4
9.9	7.2	5.0	4.3	2.9	1.0	.8	.7	.9	.9	2.9	4.2	6.5	4.6	3.7	2.2	1.1	1.0	.6	1.2	1.2	1.5	1.6	2.3	2.0	3.0	4.2	6.5	5.5	3.9	2.2	1.7	2.1	8.2	8.1	10.8
9.4	8.8	7.5	7.6	6.5	7.0	7.7	6.1	4.5	3.5	4.3	4.9	8.4	7.4	5.4	3.5	2.3	2.3	2.3	2.3	1.7	1.8	2.4	2.9	1.7	1.4	1.7	1.0	1.7	3.4	3.9	4.1	5.0	8.0	7.4	8.8
6.9	7.7	7.5	6.3	6.3	7.6	7.7	8.2	8.4	7.9	8.0	7.4	9.6	8.7	7.0	5.6	5.5	5.6	4.0	3.9	4.6	5.5	5.9	5.8	4.5	3.1	3.5	3.2	3.5	5.5	5.2	4.8	5.4	6.8	7.8	6.8
5.3	6.0	6.1	5.3	5.3	5.1	5.4	4.7	3.6	4.7	6.4	6.7	6.6	7.9	7.7	6.6	6.6	5.9	6.1	5.6	6.1	6.0	6.5	5.8	5.4	5.0	4.7	4.8	4.7	4.7	4.6	5.0	4.7	4.9	4.4	4.4
4.0	5.1	4.4	4.3	3.8	4.2	4.7	3.1	2.8	3.5	4.5	4.8	4.2	4.7	4.8	5.2	5.0	4.6	4.6	4.7	4.1	4.7	4.8	5.0	5.5	5.4	4.8	4.8	5.3	5.1	4.9	5.0	4.6	4.0	3.6	3.5
3.7	4.0	4.4	4.1	4.0	4.2	4.5	4.3	4.1	3.7	3.8	4.5	4.5	4.4	4.0	3.4	3.9	3.2	3.3	3.8	4.4	4.7	4.4	3.8	4.1	4.3	4.5	5.0	5.2	5.0	3.9	3.4	3.9	3.8	3.3	3.5
4.0	4.4	5.3	6.3	6.4	6.2	5.9	5.4	5.5	5.4	4.5	3.9	3.1	3.4	3.5	3.4	2.9	2.7	3.3	4.1	4.6	4.5	3.4	1.7	3.3	3.7	2.6	2.4	1.6	1.8	1.7	2.4	3.2	3.8	4.1	3.6
4.0	4.4	5.2	5.7	6.4	6.6	6.4	4.9	4.9	4.1	3.6	4.0	3.4	2.7	2.3	2.3	1.7	1.7	1.5	1.5	1.2	1.1	1.1	1.5	1.5	1.4	1.1	1.2	1.1	1.4	2.4	2.9	3.8	4.6	4.0	3.9

Figure 45. ATOVS MEAN O-B brightness temperature differences (deg C). JUNE 2005
Channel: HIRS11 (500 - 700 hPa)
NOAA16, using all observations



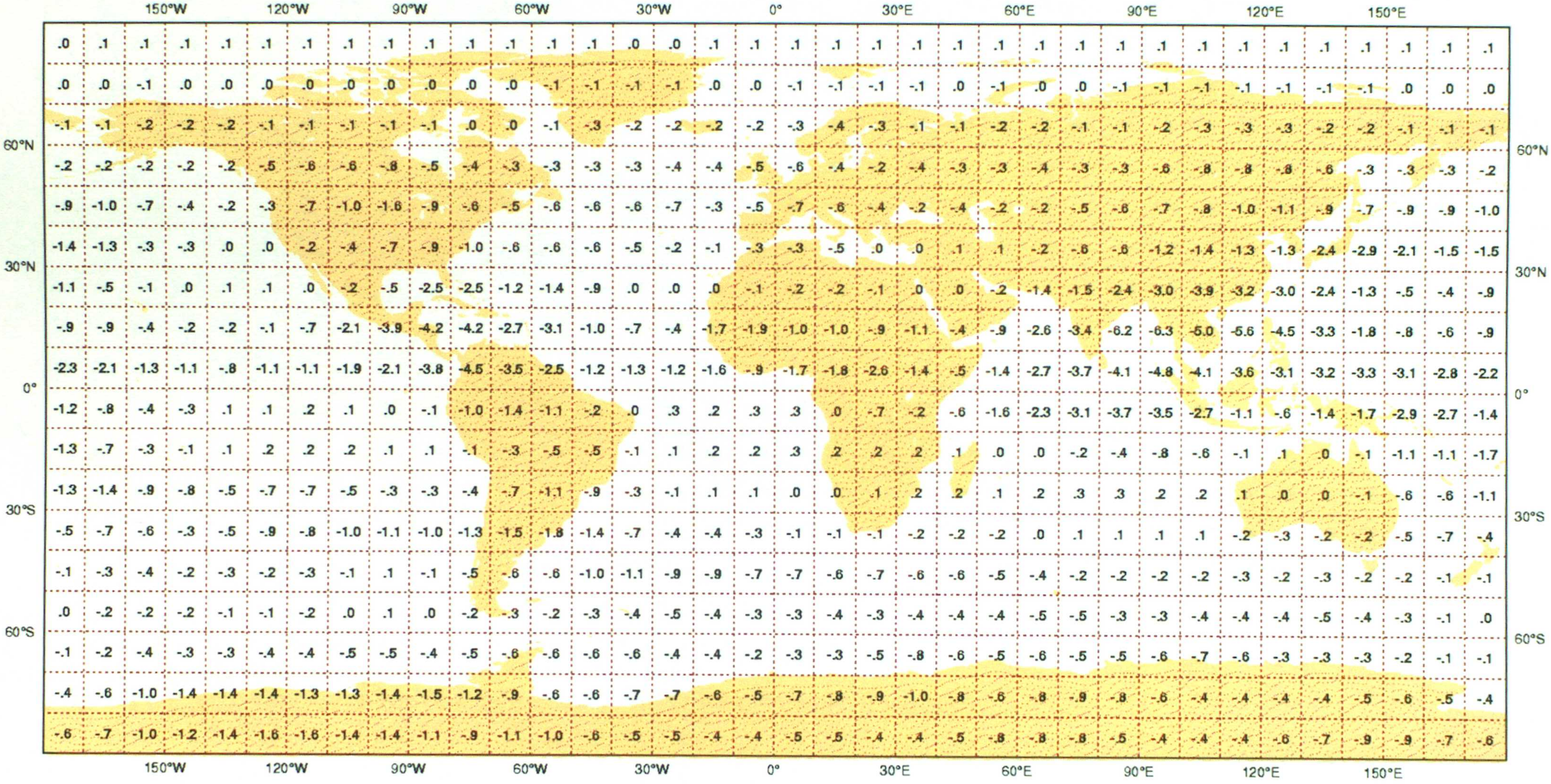
-.7	-.7	-.6	-.7	-.7	-.8	-1.0	-.9	-.8	-1.0	-1.1	-1.0	-1.2	-1.2	-1.1	-.9	-.9	-.7	-.6	-.5	-.5	-.7	-.8	-.8	-1.0	-.9	-1.0	-1.1	-1.2	-.8	-.7	-.8	-.9	-.6	-.5	-.6
-.4	-.6	-.9	-1.0	-.8	-1.0	-1.1	-1.0	-1.5	-1.6	-1.7	-1.6	-2.0	-2.2	-1.9	-1.6	-.9	-.8	-1.1	-1.6	-1.6	-1.5	-1.4	-2.0	-1.5	-1.7	-2.1	-2.0	-1.8	-1.4	-1.1	-1.5	-1.4	-.8	-.7	-.6
-1.0	-1.1	-2.6	-2.5	-2.5	-2.0	-2.0	-2.0	-1.9	-2.1	-1.7	-2.0	-2.7	-3.9	-2.5	-2.2	-2.0	-1.8	-2.4	-2.9	-2.9	-1.7	-1.3	-1.8	-2.2	-1.4	-1.5	-2.2	-2.9	-3.0	-2.8	-2.4	-3.0	-2.6	-2.4	-1.9
-2.2	-2.8	-2.5	-2.5	-2.5	-4.0	-4.3	-4.2	-4.3	-3.3	-2.8	-3.0	-2.8	-2.6	-2.5	-2.6	-2.0	-2.4	-2.8	-2.7	-2.5	-2.9	-1.9	-2.2	-2.3	-1.9	-1.8	-4.0	-5.1	-4.9	-4.5	-3.6	-2.2	-3.0	-3.1	-2.5
-4.4	-4.9	-3.4	-2.2	-1.5	-1.9	-4.5	-5.3	-6.8	-3.9	-2.8	-2.3	-2.8	-3.3	-3.2	-3.2	-1.4	-1.9	-3.3	-3.1	-2.4	-1.7	-2.5	-1.3	-1.5	-3.0	-3.8	-4.0	-5.2	-5.0	-5.4	-3.8	-2.8	-3.6	-3.8	-4.4
-5.0	-4.8	-1.8	-1.3	.0	.2	-.9	-1.9	-3.1	-3.3	-4.0	-2.5	-2.6	-2.7	-1.7	-.7	-.1	-1.9	-1.9	-2.5	-1.0	-.7	.0	-.8	-1.9	-3.7	-3.4	-5.2	-5.6	-5.0	-5.4	-8.0	-8.9	-6.5	-4.4	-4.3
-3.7	-2.0	-1.1	-.4	.2	.5	.7	-.9	-1.8	-7.1	-7.4	-3.7	-4.5	-2.8	-.1	.4	-.5	-2.9	-3.4	-2.7	-1.4	-.6	.3	-1.4	-4.2	-4.0	-4.6	-6.0	-9.4	-8.1	-7.7	-6.7	-3.5	-1.0	-.7	-1.8
-2.5	-2.5	-1.8	-1.0	-.5	-.2	-1.7	-5.5	-10.0	-10.5	-10.5	-7.1	-7.6	-2.6	-1.5	-.9	-6.1	-8.2	-5.4	-4.3	-2.1	-.7	-.1	-1.6	-6.3	-8.2	-14.5	-14.8	-12.0	-13.2	-10.4	-8.0	-4.0	-1.7	-1.3	-2.2
-6.6	-5.9	-3.9	-3.2	-2.1	-3.0	-3.4	-5.3	-5.8	-10.3	-12.5	-10.2	-7.1	-3.5	-3.3	-3.3	-4.7	-3.1	-5.0	-4.1	-5.6	-2.2	-.4	-3.3	-6.6	-9.5	-10.4	-12.9	-11.3	-10.1	-7.8	-8.0	-8.6	-8.1	-7.3	-6.1
-4.1	-3.0	-1.8	-1.3	.0	.3	.4	.5	.1	-.7	-2.6	-3.7	-3.8	-1.6	-1.3	.7	.7	.5	.5	.3	-2.7	-.8	-1.6	-4.6	-6.2	-8.6	-10.0	-9.9	-8.3	-3.3	-1.9	-4.0	-4.4	-7.8	-6.9	-3.9
-4.1	-2.5	-1.7	-1.2	-.1	.7	.8	.7	.5	-.1	-.5	-.3	-2.6	-2.8	-1.1	.3	.6	.1	-.1	.7	.8	.2	.0	.2	.7	.0	-.7	-2.3	-1.7	-.6	-.3	-.4	-.6	-2.8	-3.2	-5.1
-5.2	-5.4	-4.0	-4.1	-2.7	-2.8	-3.0	-1.9	-1.0	-1.2	-1.9	-2.3	-4.6	-3.7	-1.4	-.5	.2	.1	-.4	.0	.4	.5	-.1	.3	.6	.7	1.0	.6	.4	.2	-.9	-1.2	-1.5	-3.3	-3.2	-4.9
-3.1	-3.9	-3.9	-3.3	-3.8	-5.1	-5.4	-6.0	-6.6	-5.7	-6.3	-6.8	-8.2	-6.4	-3.5	-2.1	-1.8	-1.7	-1.1	-1.2	-1.3	-2.1	-2.4	-2.2	-1.1	-.4	-.7	-.7	-.9	-2.3	-2.8	-2.4	-2.7	-3.4	-4.1	-2.7
-3.1	-4.2	-4.2	-3.0	-3.2	-2.7	-3.1	-2.1	-1.1	-2.1	-5.2	-4.8	-4.5	-6.2	-5.9	-4.9	-4.6	-3.9	-4.8	-4.6	-5.3	-5.3	-5.5	-4.5	-3.6	-3.2	-3.0	-3.5	-3.6	-3.4	-3.4	-3.6	-2.6	-2.3	-1.7	-2.2
-2.8	-4.0	-3.9	-3.4	-2.5	-2.4	-2.9	-1.7	-1.5	-2.5	-4.4	-4.1	-3.8	-4.4	-4.5	-5.4	-5.2	-4.7	-4.8	-4.8	-4.2	-5.4	-5.1	-4.9	-5.2	-5.3	-4.6	-4.4	-5.2	-5.4	-4.9	-5.2	-4.2	-3.7	-2.9	-2.4
-4.2	-4.6	-5.0	-4.1	-3.7	-3.7	-3.9	-4.0	-4.0	-3.8	-4.4	-4.6	-6.0	-6.8	-6.7	-5.4	-5.2	-4.7	-5.1	-5.3	-5.9	-7.0	-5.6	-4.4	-5.0	-5.0	-4.8	-5.0	-5.6	-5.3	-4.0	-3.5	-4.1	-4.1	-4.5	-4.6
-6.1	-6.5	-8.1	-9.4	-8.5	-7.5	-6.7	-6.4	-6.3	-6.6	-5.9	-4.7	-5.2	-5.5	-5.7	-4.2	-3.5	-2.9	-4.0	-5.1	-5.3	-4.8	-3.8	-2.2	-2.5	-3.1	-3.6	-2.6	-2.9	-2.7	-2.4	-1.9	-2.9	-3.7	-4.2	-5.7
-5.9	-6.5	-7.4	-7.2	-7.2	-7.2	-7.2	-6.0	-4.3	-3.1	-3.8	-5.3	-4.7	-3.0	-2.6	-2.2	-2.0	-2.1	-2.2	-2.0	-1.5	-1.5	-1.9	-2.1	-2.2	-2.1	-1.8	-2.1	-2.2	-2.1	-2.6	-2.9	-4.0	-4.0	-5.1	-5.8

Figure 46. ATOVS SD O-B brightness temperature differences (deg C). JUNE 2005
Channel: HIRS11 (500 - 700 hPa)
NOAA16, using all observations



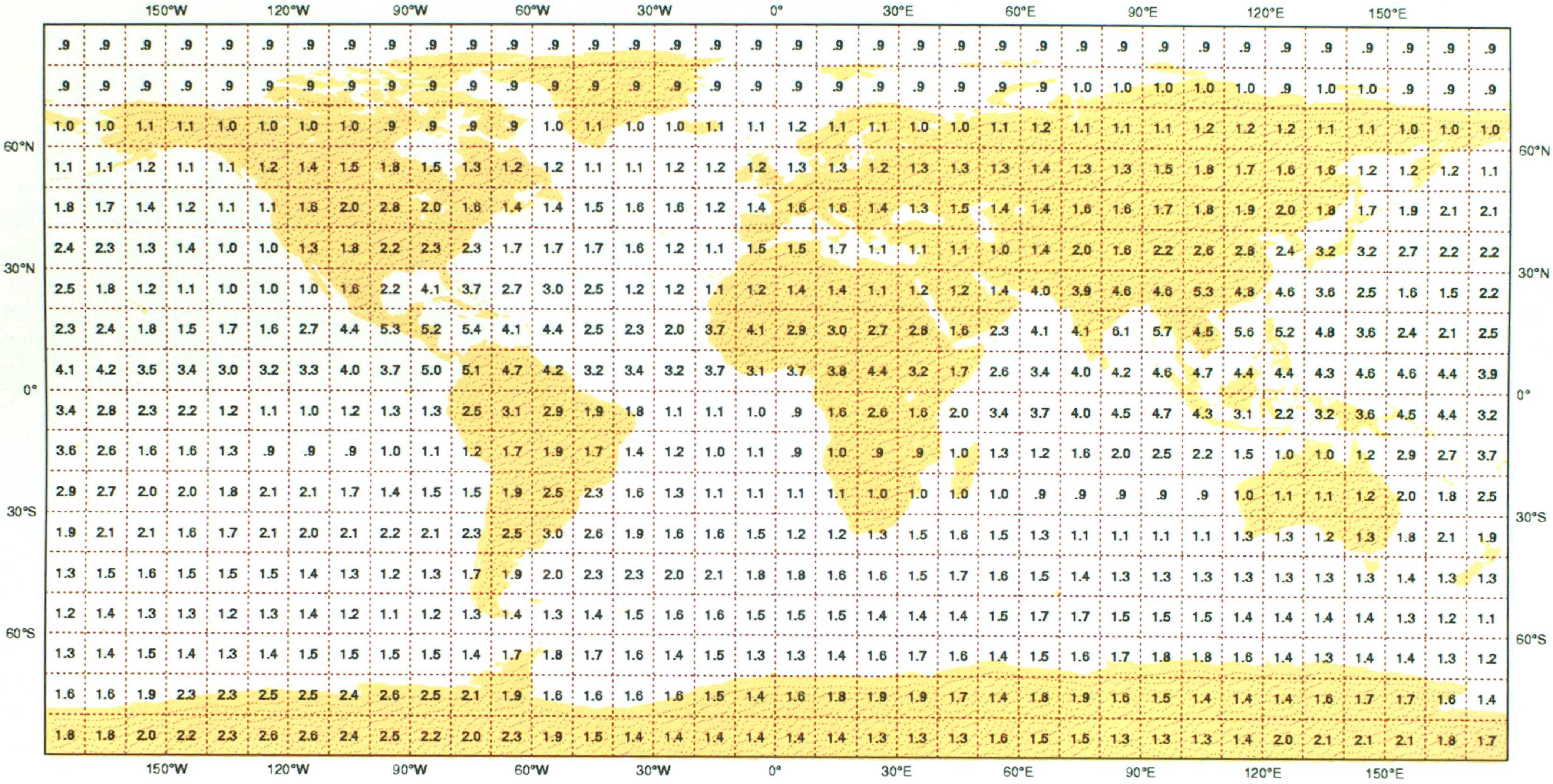
2.1	2.0	2.0	1.9	2.0	2.1	2.2	2.2	2.1	2.3	2.3	2.2	2.5	2.4	2.4	2.6	2.5	2.2	2.1	2.3	2.5	2.4	2.3	2.4	2.7	2.8	3.0	3.0	2.9	2.6	2.6	2.9	3.0	2.7	2.5	2.1
2.5	2.5	2.8	2.7	2.5	2.6	2.5	2.4	2.7	2.9	3.2	3.2	3.2	2.7	2.7	3.2	2.7	2.5	2.7	3.2	3.2	3.2	2.8	3.4	3.5	3.7	4.0	4.2	4.5	3.9	3.8	3.9	3.9	3.4	2.9	2.8
3.3	3.6	4.7	4.5	4.6	4.3	4.1	3.9	3.3	3.4	3.2	3.2	4.0	5.0	4.2	4.2	4.0	4.0	4.6	4.7	4.4	4.0	3.9	4.8	5.0	4.4	4.5	4.9	5.8	5.8	5.4	4.5	4.9	4.4	3.7	3.7
3.7	4.5	4.4	4.0	4.1	5.2	6.5	7.1	7.4	6.1	5.3	5.0	4.9	4.7	4.9	5.2	4.7	4.9	5.1	4.9	4.9	6.2	6.0	5.9	6.1	6.1	6.1	6.9	8.0	7.6	7.3	6.6	5.0	4.9	4.7	4.0
6.6	6.2	5.2	4.3	3.6	4.5	7.0	8.6	11.2	7.4	6.0	5.1	5.6	6.1	6.4	6.1	4.5	5.5	6.6	6.3	5.7	5.8	7.0	6.1	5.9	7.1	7.5	7.4	7.6	8.0	8.5	7.1	6.4	7.4	7.4	7.2
8.0	7.8	3.7	4.0	2.2	2.1	4.7	7.1	8.9	7.6	8.0	5.2	5.8	5.9	5.5	3.6	3.5	5.7	5.8	6.9	4.1	3.8	4.0	3.8	5.4	7.4	6.5	7.1	7.8	8.9	8.3	10.0	9.6	8.7	7.3	7.0
8.1	5.8	3.5	2.6	1.9	2.0	2.3	5.4	6.8	12.0	10.6	7.7	8.8	7.5	3.2	3.0	3.4	4.5	5.4	4.9	3.5	3.7	3.1	3.7	9.4	9.6	11.9	11.6	13.3	12.5	12.2	10.2	7.3	4.4	4.1	6.2
6.6	6.7	5.3	4.0	4.3	4.6	7.3	11.6	14.1	14.2	14.4	11.4	11.9	7.1	5.8	5.4	10.4	11.6	8.8	8.3	7.6	7.6	4.1	6.5	10.8	10.6	15.2	14.3	11.5	14.6	13.8	13.0	9.8	7.0	6.4	7.2
11.7	12.0	10.5	9.7	8.6	9.5	9.6	11.4	10.4	13.5	14.1	13.1	11.7	9.5	9.8	9.3	10.9	8.9	11.0	11.2	12.8	8.7	4.6	7.8	9.9	10.8	11.2	11.9	12.5	12.0	11.7	11.8	12.8	12.6	12.4	11.3
9.5	8.2	6.7	6.0	2.7	2.1	1.9	2.7	2.7	3.1	7.6	9.0	8.4	5.1	5.5	2.2	1.9	1.5	2.0	5.1	7.7	3.7	5.1	9.8	10.7	11.4	12.4	12.8	11.6	8.4	5.9	9.0	10.0	12.5	12.2	9.3
10.2	8.0	5.5	5.0	3.7	1.5	1.3	1.2	1.6	1.9	3.6	5.5	6.5	5.0	4.2	3.1	1.8	1.9	1.7	1.9	2.0	1.9	2.0	3.1	2.8	3.9	5.3	7.0	5.8	3.7	2.0	1.9	2.3	7.9	7.8	10.8
9.5	9.3	8.0	8.0	6.8	7.3	7.8	6.2	4.9	4.3	5.2	6.7	9.6	8.0	6.4	4.2	2.8	3.0	3.3	3.5	2.8	2.7	3.2	3.3	2.2	1.6	2.0	1.5	2.3	3.7	4.1	4.1	5.0	7.5	7.1	9.0
7.6	8.6	8.3	7.3	7.4	8.5	8.7	9.1	9.4	9.0	9.4	9.9	12.0	10.0	7.9	6.4	6.1	6.3	4.8	4.9	5.7	6.5	7.0	6.7	5.6	3.9	4.1	4.0	4.3	6.6	6.1	5.7	6.0	7.5	8.6	7.5
6.5	7.3	7.3	6.2	6.3	6.1	6.5	5.9	4.6	5.9	8.3	8.8	8.1	9.4	8.8	7.9	8.1	7.6	7.5	7.1	7.8	7.6	8.1	7.2	6.5	6.3	6.0	6.1	6.1	5.8	5.6	6.2	5.5	5.7	5.3	5.7
5.2	6.4	5.9	5.4	4.6	5.3	5.8	4.0	3.7	4.8	6.4	6.7	5.9	6.4	6.3	7.2	6.9	6.5	6.5	6.6	5.6	6.6	6.5	6.8	7.2	7.0	6.3	6.1	7.0	6.9	6.4	6.6	5.8	5.2	4.8	4.4
5.0	5.4	5.8	5.5	5.3	5.6	6.1	5.9	5.8	5.3	5.6	7.0	6.6	6.7	5.7	5.1	5.7	4.9	5.0	5.6	6.5	6.8	6.3	5.6	5.9	6.1	6.3	6.9	7.0	6.8	5.5	4.8	5.3	5.2	4.4	4.7
5.4	5.9	7.1	8.5	8.9	9.0	8.6	7.6	8.0	7.9	6.7	6.2	5.0	5.6	5.3	5.6	5.2	5.2	5.9	7.0	7.6	7.4	5.5	3.4	5.5	6.1	4.5	4.4	3.5	3.8	3.6	4.3	5.3	6.0	6.9	5.0
6.4	7.0	7.8	8.7	9.6	10.0	9.6	7.5	7.8	6.7	6.0	6.4	5.5	4.7	4.4	4.4	3.5	3.4	3.1	3.3	3.1	2.9	3.0	3.4	3.6	3.4	3.2	3.7	3.5	3.6	4.4	4.9	6.0	7.5	6.8	6.2

Figure 47. ATOVS MEAN O-B brightness temperature differences (deg C). JUNE 2005
Channel: HIRS4 (400 hPa)
NOAA16, using all observations



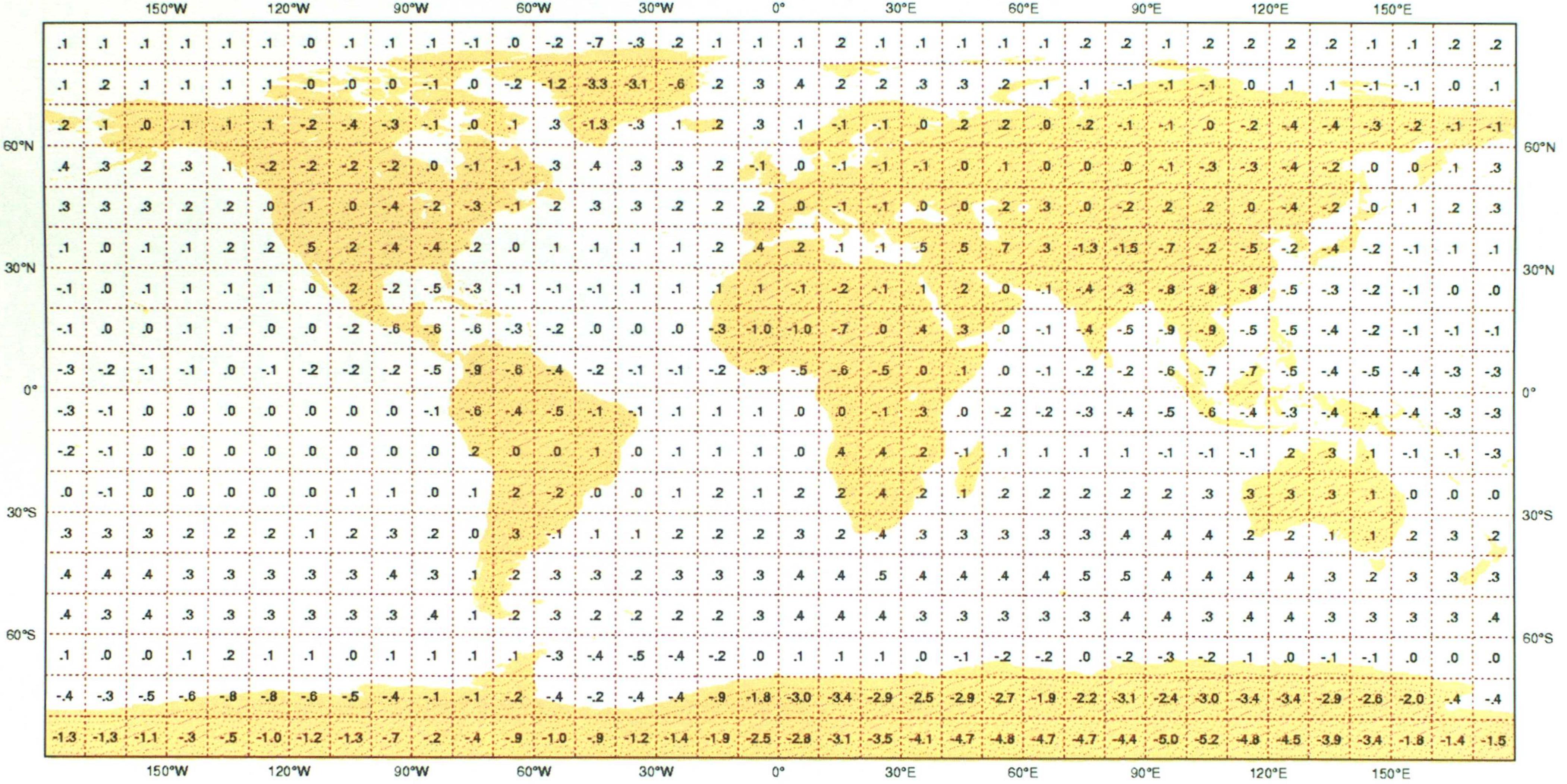
.0	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.0	.0	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
.0	.0	-.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	-.1	-.1	-.1	-.1	.0	.0	-.1	-.1	-.1	-.1	.0	-.1	.0	.0	-.1	-.1	-.1	-.1	-.1	-.1	-.1	.0	.0	.0
-.1	-.1	-.2	-.2	-.2	-.1	-.1	-.1	-.1	-.1	.0	.0	-.1	-.3	-.2	-.2	-.2	-.2	-.3	-.4	-.3	-.1	-.1	-.2	-.2	-.1	-.1	-.2	-.3	-.3	-.3	-.2	-.2	-.1	-.1	-.1
-.2	-.2	-.2	-.2	-.2	-.5	-.6	-.6	-.8	-.5	-.4	-.3	-.3	-.3	-.3	-.4	-.4	-.5	-.6	-.4	-.2	-.4	-.3	-.3	-.4	-.3	-.3	-.6	-.8	-.8	-.8	-.6	-.3	-.3	-.3	-.2
-.9	-1.0	-.7	-.4	-.2	-.3	-.7	-1.0	-1.6	-.9	-.6	-.5	-.6	-.6	-.6	-.7	-.3	-.5	-.7	-.6	-.4	-.2	-.4	-.2	-.2	-.5	-.6	-.7	-.8	-1.0	-1.1	-.9	-.7	-.9	-.9	-1.0
-1.4	-1.3	-.3	-.3	.0	.0	-.2	-.4	-.7	-.9	-1.0	-.6	-.6	-.6	-.5	-.2	-.1	-.3	-.3	-.5	.0	.0	.1	.1	-.2	-.6	-.6	-1.2	-1.4	-1.3	-1.3	-2.4	-2.9	-2.1	-1.5	-1.5
-1.1	-.5	-.1	.0	.1	.1	.0	-.2	-.5	-2.5	-2.5	-1.2	-1.4	-.9	.0	.0	.0	-.1	-.2	-.2	-.1	.0	.0	-.2	-1.4	-1.5	-2.4	-3.0	-3.9	-3.2	-3.0	-2.4	-1.3	-.5	-.4	-.9
-.9	-.9	-.4	-.2	-.2	-.1	-.7	-2.1	-3.9	-4.2	-4.2	-2.7	-3.1	-1.0	-.7	-.4	-1.7	-1.9	-1.0	-1.0	-.9	-1.1	-.4	-.9	-2.6	-3.4	-6.2	-6.3	-5.0	-5.6	-4.5	-3.3	-1.8	-.8	-.6	-.9
-2.3	-2.1	-1.3	-1.1	-.8	-1.1	-1.1	-1.9	-2.1	-3.8	-4.5	-3.5	-2.5	-1.2	-1.3	-1.2	-1.6	-.9	-1.7	-1.8	-2.6	-1.4	-.5	-1.4	-2.7	-3.7	-4.1	-4.8	-4.1	-3.6	-3.1	-3.2	-3.3	-3.1	-2.8	-2.2
-1.2	-.8	-.4	-.3	.1	.1	.2	.1	.0	-.1	-1.0	-1.4	-1.1	-.2	.0	.3	.2	.3	.3	.0	-.7	-.2	-.6	-1.6	-2.3	-3.1	-3.7	-3.5	-2.7	-1.1	-.6	-1.4	-1.7	-2.9	-2.7	-1.4
-1.3	-.7	-.3	-.1	.1	.2	.2	.2	.1	.1	-.1	-.3	-.5	-.5	-.1	.1	.2	.2	.3	.2	.2	.2	.1	.0	.0	-.2	-.4	-.8	-.6	-.1	.1	.0	-.1	-1.1	-1.1	-1.7
-1.3	-1.4	-.9	-.8	-.5	-.7	-.7	-.5	-.3	-.3	-.4	-.7	-1.1	-.9	-.3	-.1	.1	.1	.0	.0	.1	.2	.2	.1	.2	.3	.3	.2	.2	.1	.0	.0	-.1	-.6	-.6	-1.1
-.5	-.7	-.6	-.3	-.5	-.9	-.8	-1.0	-1.1	-1.0	-1.3	-1.5	-1.8	-1.4	-.7	-.4	-.4	-.3	-.1	-.1	-.1	-.2	-.2	-.2	.0	.1	.1	.1	.1	-.2	-.3	-.2	-.2	-.5	-.7	-.4
-.1	-.3	-.4	-.2	-.3	-.2	-.3	-.1	.1	-.1	-.5	-.6	-.6	-1.0	-1.1	-.9	-.9	-.7	-.7	-.6	-.7	-.6	-.6	-.5	-.4	-.2	-.2	-.2	-.2	-.3	-.2	-.3	-.2	-.2	-.1	-.1
.0	-.2	-.2	-.2	-.1	-.1	-.2	.0	.1	.0	-.2	-.3	-.2	-.3	-.4	-.5	-.4	-.3	-.3	-.4	-.3	-.4	-.4	-.4	-.5	-.5	-.3	-.3	-.4	-.4	-.4	-.5	-.4	-.3	-.1	.0
-.1	-.2	-.4	-.3	-.3	-.4	-.4	-.5	-.5	-.4	-.5	-.6	-.6	-.6	-.6	-.4	-.4	-.2	-.3	-.3	-.5	-.8	-.6	-.5	-.6	-.5	-.5	-.6	-.7	-.6	-.3	-.3	-.3	-.2	-.1	-.1
-.4	-.6	-1.0	-1.4	-1.4	-1.4	-1.3	-1.3	-1.4	-1.5	-1.2	-.9	-.6	-.6	-.7	-.7	-.6	-.5	-.7	-.8	-.9	-1.0	-.8	-.6	-.8	-.9	-.8	-.6	-.4	-.4	-.4	-.4	-.5	-.6	-.5	-.4
-.6	-.7	-1.0	-1.2	-1.4	-1.6	-1.6	-1.4	-1.4	-1.1	-.9	-1.1	-1.0	-.6	-.5	-.5	-.4	-.4	-.5	-.5	-.4	-.4	-.5	-.8	-.8	-.8	-.5	-.4	-.4	-.4	-.6	-.7	-.9	-.9	-.7	-.6

Figure 48. ATOVS SD O-B brightness temperature differences (deg C). JUNE 2005
Channel: HIRS4 (400 hPa)
NOAA16, using all observations



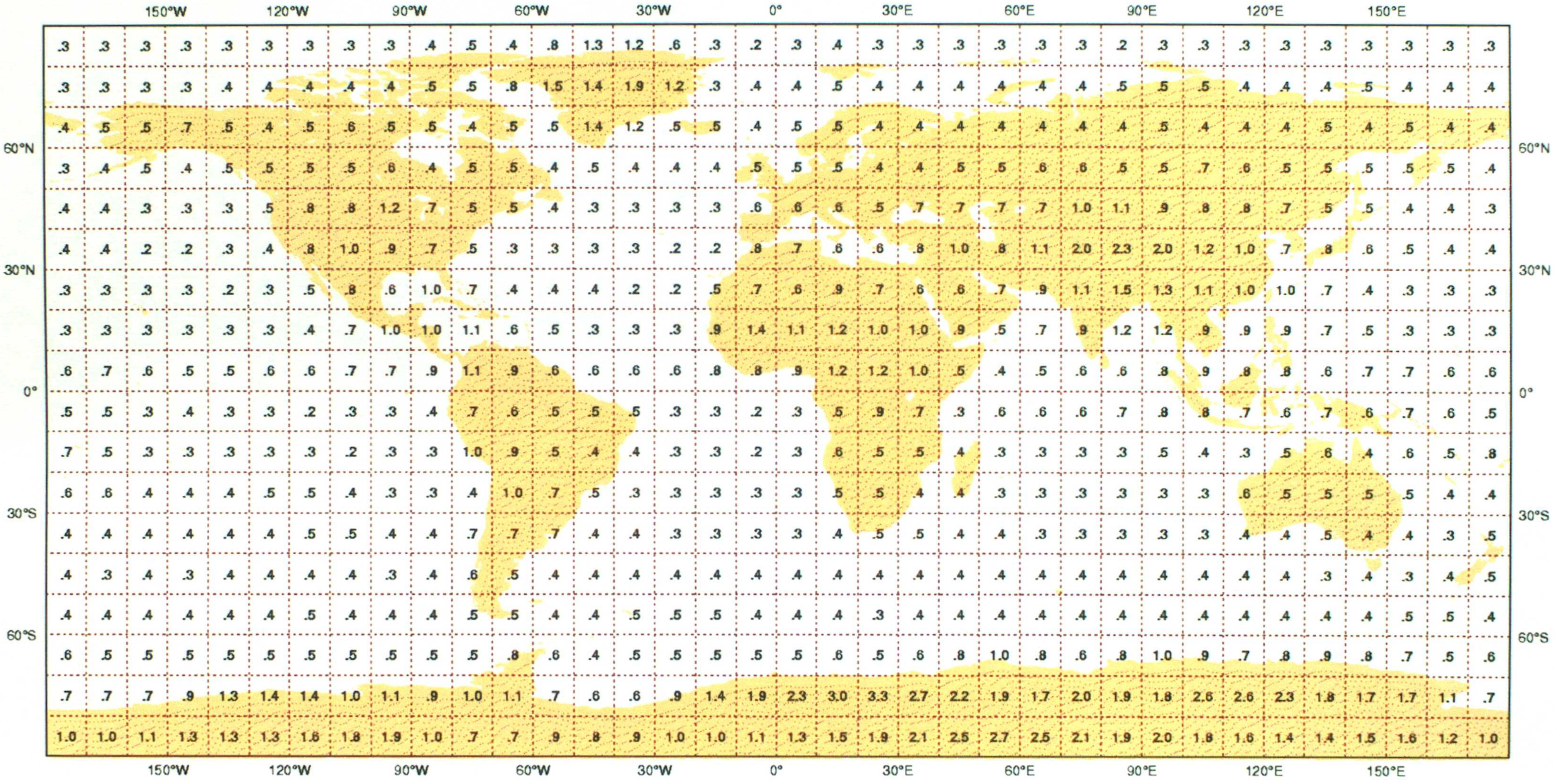
.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9
.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	.9	1.0	1.0	1.0	1.0	1.0	.9	1.0	1.0	.9	.9	.9
1.0	1.0	1.1	1.1	1.0	1.0	1.0	1.0	.9	.9	.9	.9	1.0	1.1	1.0	1.0	1.1	1.1	1.2	1.1	1.1	1.0	1.0	1.1	1.2	1.1	1.1	1.1	1.2	1.2	1.2	1.1	1.1	1.0	1.0	1.0
1.1	1.1	1.2	1.1	1.1	1.2	1.4	1.5	1.8	1.5	1.3	1.2	1.2	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.2	1.3	1.3	1.3	1.4	1.3	1.3	1.5	1.8	1.7	1.6	1.6	1.2	1.2	1.2	1.1
1.8	1.7	1.4	1.2	1.1	1.1	1.6	2.0	2.8	2.0	1.6	1.4	1.4	1.5	1.6	1.6	1.2	1.4	1.6	1.6	1.4	1.3	1.5	1.4	1.4	1.6	1.6	1.7	1.8	1.9	2.0	1.8	1.7	1.9	2.1	2.1
2.4	2.3	1.3	1.4	1.0	1.0	1.3	1.8	2.2	2.3	2.3	1.7	1.7	1.7	1.6	1.2	1.1	1.5	1.5	1.7	1.1	1.1	1.1	1.0	1.4	2.0	1.6	2.2	2.6	2.8	2.4	3.2	3.2	2.7	2.2	2.2
2.5	1.8	1.2	1.1	1.0	1.0	1.0	1.6	2.2	4.1	3.7	2.7	3.0	2.5	1.2	1.2	1.1	1.2	1.4	1.4	1.1	1.2	1.2	1.4	4.0	3.9	4.6	4.6	5.3	4.8	4.6	3.6	2.5	1.6	1.5	2.2
2.3	2.4	1.8	1.5	1.7	1.6	2.7	4.4	5.3	5.2	5.4	4.1	4.4	2.5	2.3	2.0	3.7	4.1	2.9	3.0	2.7	2.8	1.6	2.3	4.1	4.1	6.1	5.7	4.5	5.6	5.2	4.8	3.6	2.4	2.1	2.5
4.1	4.2	3.5	3.4	3.0	3.2	3.3	4.0	3.7	5.0	5.1	4.7	4.2	3.2	3.4	3.2	3.7	3.1	3.7	3.8	4.4	3.2	1.7	2.6	3.4	4.0	4.2	4.6	4.7	4.4	4.4	4.3	4.6	4.6	4.4	3.9
3.4	2.8	2.3	2.2	1.2	1.1	1.0	1.2	1.3	1.3	2.5	3.1	2.9	1.9	1.8	1.1	1.1	1.0	.9	1.6	2.6	1.6	2.0	3.4	3.7	4.0	4.5	4.7	4.3	3.1	2.2	3.2	3.6	4.5	4.4	3.2
3.6	2.6	1.6	1.6	1.3	.9	.9	.9	1.0	1.1	1.2	1.7	1.9	1.7	1.4	1.2	1.0	1.1	.9	1.0	.9	.9	1.0	1.3	1.2	1.6	2.0	2.5	2.2	1.5	1.0	1.0	1.2	2.9	2.7	3.7
2.9	2.7	2.0	2.0	1.8	2.1	2.1	1.7	1.4	1.5	1.5	1.9	2.5	2.3	1.6	1.3	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	.9	.9	.9	.9	.9	1.0	1.1	1.1	1.2	2.0	1.8	2.5
1.9	2.1	2.1	1.6	1.7	2.1	2.0	2.1	2.2	2.1	2.3	2.5	3.0	2.6	1.9	1.6	1.6	1.5	1.2	1.2	1.3	1.5	1.6	1.5	1.3	1.1	1.1	1.1	1.1	1.3	1.3	1.2	1.3	1.8	2.1	1.9
1.3	1.5	1.6	1.5	1.5	1.5	1.4	1.3	1.2	1.3	1.7	1.9	2.0	2.3	2.3	2.0	2.1	1.8	1.8	1.6	1.6	1.5	1.7	1.6	1.5	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.3	1.3
1.2	1.4	1.3	1.3	1.2	1.3	1.4	1.2	1.1	1.2	1.3	1.4	1.3	1.4	1.5	1.6	1.6	1.5	1.5	1.5	1.4	1.4	1.4	1.5	1.7	1.7	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.3	1.2	1.1
1.3	1.4	1.5	1.4	1.3	1.4	1.5	1.5	1.5	1.5	1.4	1.7	1.8	1.7	1.6	1.4	1.5	1.3	1.3	1.4	1.6	1.7	1.6	1.4	1.5	1.6	1.7	1.8	1.8	1.6	1.4	1.3	1.4	1.4	1.3	1.2
1.6	1.6	1.9	2.3	2.3	2.5	2.5	2.4	2.6	2.5	2.1	1.9	1.6	1.6	1.6	1.6	1.5	1.4	1.6	1.8	1.9	1.9	1.7	1.4	1.8	1.9	1.6	1.5	1.4	1.4	1.4	1.6	1.7	1.7	1.6	1.4
1.8	1.8	2.0	2.2	2.3	2.6	2.6	2.4	2.5	2.2	2.0	2.3	1.9	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.6	1.5	1.5	1.3	1.3	1.3	1.4	2.0	2.1	2.1	2.1	1.8	1.7

Figure 49. ATOVS MEAN O-B brightness temperature differences (deg C). JUNE 2005
Channel: AMSUA-5 (700 hPa)
NOAA16, using all observations



.1	.1	.1	.1	.1	.1	.0	.1	.1	.1	-.1	.0	-.2	-.7	-.3	.2	.1	.1	.1	.2	.1	.1	.1	.1	.1	.2	.2	.1	.2	.2	.2	.2	.1	.1	.2	.2
.1	.2	.1	.1	.1	.1	.0	.0	.0	-.1	.0	-.2	-1.2	-3.3	-3.1	-.6	.2	.3	.4	.2	.2	.3	.3	.2	.1	.1	-.1	-.1	-.1	.0	.1	.1	-.1	-.1	.0	.1
.2	.1	.0	.1	.1	.1	-.2	-.4	-.3	-.1	.0	.1	.3	-1.3	-.3	.1	.2	.3	.1	-.1	-.1	.0	.2	.2	.0	-.2	-.1	-.1	.0	-.2	-.4	-.4	-.3	-.2	-.1	-.1
.4	.3	.2	.3	.1	-.2	-.2	-.2	-.2	.0	-.1	-.1	.3	.4	.3	.3	.2	-.1	.0	-.1	-.1	-.1	.0	.1	.0	.0	.0	-.1	-.3	-.3	-.4	-.2	.0	.0	.1	.3
.3	.3	.3	.2	.2	.0	.1	.0	-.4	-.2	-.3	-.1	.2	.3	.3	.2	.2	.2	.0	-.1	-.1	.0	.0	.2	.3	.0	-.2	.2	.2	.0	-.4	-.2	.0	.1	.2	.3
.1	.0	.1	.1	.2	.2	.5	.2	-.4	-.4	-.2	.0	.1	.1	.1	.1	.2	.4	.2	.1	.1	.5	.5	.7	.3	-1.3	-1.5	-.7	-.2	-.5	-.2	-.4	-.2	-.1	.1	.1
-.1	.0	.1	.1	.1	.1	.0	.2	-.2	-.5	-.3	-.1	-.1	-.1	.1	.1	.1	.1	-.1	-.2	-.1	.1	.2	.0	-.1	-.4	-.3	-.8	-.8	-.8	-.5	-.3	-.2	-.1	.0	.0
-.1	.0	.0	.1	.1	.0	.0	-.2	-.6	-.6	-.6	-.3	-.2	.0	.0	.0	-.3	-1.0	-1.0	-.7	.0	.4	.3	.0	-.1	-.4	-.5	-.9	-.9	-.5	-.5	-.4	-.2	-.1	-.1	-.1
-.3	-.2	-.1	-.1	.0	-.1	-.2	-.2	-.2	-.5	-.9	-.6	-.4	-.2	-.1	-.1	-.2	-.3	-.5	-.6	-.5	.0	.1	.0	-.1	-.2	-.2	-.6	-.7	-.7	-.5	-.4	-.5	-.4	-.3	-.3
-.3	-.1	.0	.0	.0	.0	.0	.0	.0	-.1	-.6	-.4	-.5	-.1	-.1	.1	.1	.1	.0	.0	-.1	.3	.0	-.2	-.2	-.3	-.4	-.5	-.6	-.4	-.3	-.4	-.4	-.4	-.3	-.3
-.2	-.1	.0	.0	.0	.0	.0	.0	.0	.0	.2	.0	.0	.1	.0	.1	.1	.1	.0	.4	.4	.2	-.1	.1	.1	.1	.1	-.1	-.1	-.1	.2	.3	.1	-.1	-.1	-.3
.0	-.1	.0	.0	.0	.0	.0	.1	.1	.0	.1	.2	-.2	.0	.0	.1	.2	.1	.2	.2	.4	.2	.1	.2	.2	.2	.2	.2	.3	.3	.3	.3	.1	.0	.0	.0
.3	.3	.3	.2	.2	.2	.1	.2	.3	.2	.0	.3	-.1	.1	.1	.2	.2	.2	.3	.2	.4	.3	.3	.3	.3	.3	.4	.4	.4	.2	.2	.1	.1	.2	.3	.2
.4	.4	.4	.3	.3	.3	.3	.3	.4	.3	.1	.2	.3	.3	.2	.3	.3	.3	.4	.4	.5	.4	.4	.4	.4	.5	.5	.4	.4	.4	.4	.3	.2	.3	.3	.3
.4	.3	.4	.3	.3	.3	.3	.3	.3	.4	.1	.2	.3	.2	.2	.2	.2	.3	.4	.4	.4	.3	.3	.3	.3	.3	.4	.4	.3	.4	.4	.3	.3	.3	.3	.4
.1	.0	.0	.1	.2	.1	.1	.0	.1	.1	.1	.1	-.3	-.4	-.5	-.4	-.2	.0	.1	.1	.1	.0	-.1	-.2	-.2	.0	-.2	-.3	-.2	.1	.0	-.1	-.1	.0	.0	.0
-.4	-.3	-.5	-.6	-.8	-.8	-.6	-.5	-.4	-.1	-.1	-.2	-.4	-.2	-.4	-.4	-.9	-1.8	-3.0	-3.4	-2.9	-2.5	-2.9	-2.7	-1.9	-2.2	-3.1	-2.4	-3.0	-3.4	-3.4	-2.9	-2.6	-2.0	-.4	-.4
-1.3	-1.3	-1.1	-.3	-.5	-1.0	-1.2	-1.3	-.7	-.2	-.4	-.9	-1.0	-.9	-1.2	-1.4	-1.9	-2.5	-2.8	-3.1	-3.5	-4.1	-4.7	-4.8	-4.7	-4.7	-4.4	-5.0	-5.2	-4.8	-4.5	-3.9	-3.4	-1.8	-1.4	-1.5

Figure 50. ATOVS SD O-B brightness temperature differences (deg C). JUNE 2005
Channel: AMSUA-5 (700 hPa)
NOAA16, using all observations



.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.5	.4	.8	1.3	1.2	.6	.3	.2	.3	.4	.3	.3	.3	.3	.3	.3	.2	.3	.3	.3	.3	.3	.3	.3	.3	.3
.3	.3	.3	.3	.4	.4	.4	.4	.4	.5	.5	.8	1.5	1.4	1.9	1.2	.3	.4	.4	.5	.4	.4	.4	.4	.4	.4	.5	.5	.5	.4	.4	.4	.5	.4	.4	.4
.4	.5	.5	.7	.5	.4	.5	.6	.5	.5	.4	.5	.5	1.4	1.2	.5	.5	.4	.5	.5	.4	.4	.4	.4	.4	.4	.4	.5	.4	.4	.4	.5	.4	.5	.4	.4
.3	.4	.5	.4	.5	.5	.5	.5	.6	.4	.5	.5	.4	.5	.4	.4	.4	.5	.5	.5	.4	.4	.5	.5	.6	.6	.5	.5	.7	.6	.5	.5	.5	.5	.5	.4
.4	.4	.3	.3	.3	.5	.8	.8	1.2	.7	.5	.5	.4	.3	.3	.3	.3	.6	.6	.6	.5	.7	.7	.7	.7	1.0	1.1	.9	.8	.8	.7	.5	.5	.4	.4	.3
.4	.4	.2	.2	.3	.4	.8	1.0	.9	.7	.5	.3	.3	.3	.3	.2	.2	.8	.7	.6	.6	.8	1.0	.8	1.1	2.0	2.3	2.0	1.2	1.0	.7	.8	.6	.5	.4	.4
.3	.3	.3	.3	.2	.3	.5	.8	.6	1.0	.7	.4	.4	.4	.2	.2	.5	.7	.6	.9	.7	.6	.6	.7	.9	1.1	1.5	1.3	1.1	1.0	1.0	.7	.4	.3	.3	.3
.3	.3	.3	.3	.3	.3	.4	.7	1.0	1.0	1.1	.6	.5	.3	.3	.3	.9	1.4	1.1	1.2	1.0	1.0	.9	.5	.7	.9	1.2	1.2	.9	.9	.9	.7	.5	.3	.3	.3
.6	.7	.6	.5	.5	.6	.6	.7	.7	.9	1.1	.9	.6	.6	.6	.6	.8	.8	.9	1.2	1.2	1.0	.5	.4	.5	.6	.6	.8	.9	.8	.8	.6	.7	.7	.6	.6
.5	.5	.3	.4	.3	.3	.2	.3	.3	.4	.7	.6	.5	.5	.5	.3	.3	.2	.3	.5	.9	.7	.3	.6	.6	.6	.7	.8	.8	.7	.6	.7	.6	.7	.6	.5
.7	.5	.3	.3	.3	.3	.3	.2	.3	.3	1.0	.9	.5	.4	.4	.3	.3	.2	.3	.6	.5	.5	.4	.3	.3	.3	.3	.5	.4	.3	.5	.6	.4	.6	.5	.8
.6	.6	.4	.4	.4	.5	.5	.4	.3	.3	.4	1.0	.7	.5	.3	.3	.3	.3	.3	.5	.5	.4	.4	.3	.3	.3	.3	.3	.3	.6	.5	.5	.5	.5	.4	.4
.4	.4	.4	.4	.4	.4	.5	.5	.4	.4	.7	.7	.7	.4	.4	.3	.3	.3	.3	.4	.5	.5	.4	.4	.3	.3	.3	.3	.3	.4	.4	.5	.4	.4	.3	.5
.4	.3	.4	.3	.4	.4	.4	.4	.3	.4	.6	.5	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.3	.4	.3	.4	.5
.4	.4	.4	.4	.4	.4	.5	.4	.4	.4	.5	.5	.4	.4	.5	.5	.5	.4	.4	.4	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.5	.5	.4
.6	.5	.5	.5	.5	.5	.5	.5	.5	.5	.5	.8	.6	.4	.5	.5	.5	.5	.5	.6	.5	.6	.8	1.0	.8	.6	.8	1.0	.9	.7	.8	.9	.8	.7	.5	.6
.7	.7	.7	.9	1.3	1.4	1.4	1.0	1.1	.9	1.0	1.1	.7	.6	.6	.9	1.4	1.9	2.3	3.0	3.3	2.7	2.2	1.9	1.7	2.0	1.9	1.8	2.6	2.6	2.3	1.8	1.7	1.7	1.1	.7
1.0	1.0	1.1	1.3	1.3	1.3	1.6	1.8	1.9	1.0	.7	.7	.9	.8	.9	1.0	1.0	1.1	1.3	1.5	1.9	2.1	2.5	2.7	2.5	2.1	1.9	2.0	1.8	1.6	1.4	1.4	1.5	1.6	1.2	1.0

Figure 51. ATOVS MEAN O-B brightness temperature differences (deg C). JUNE 2005
Channel: AMSUA-7 (300 hPa)
NOAA16, using all observations

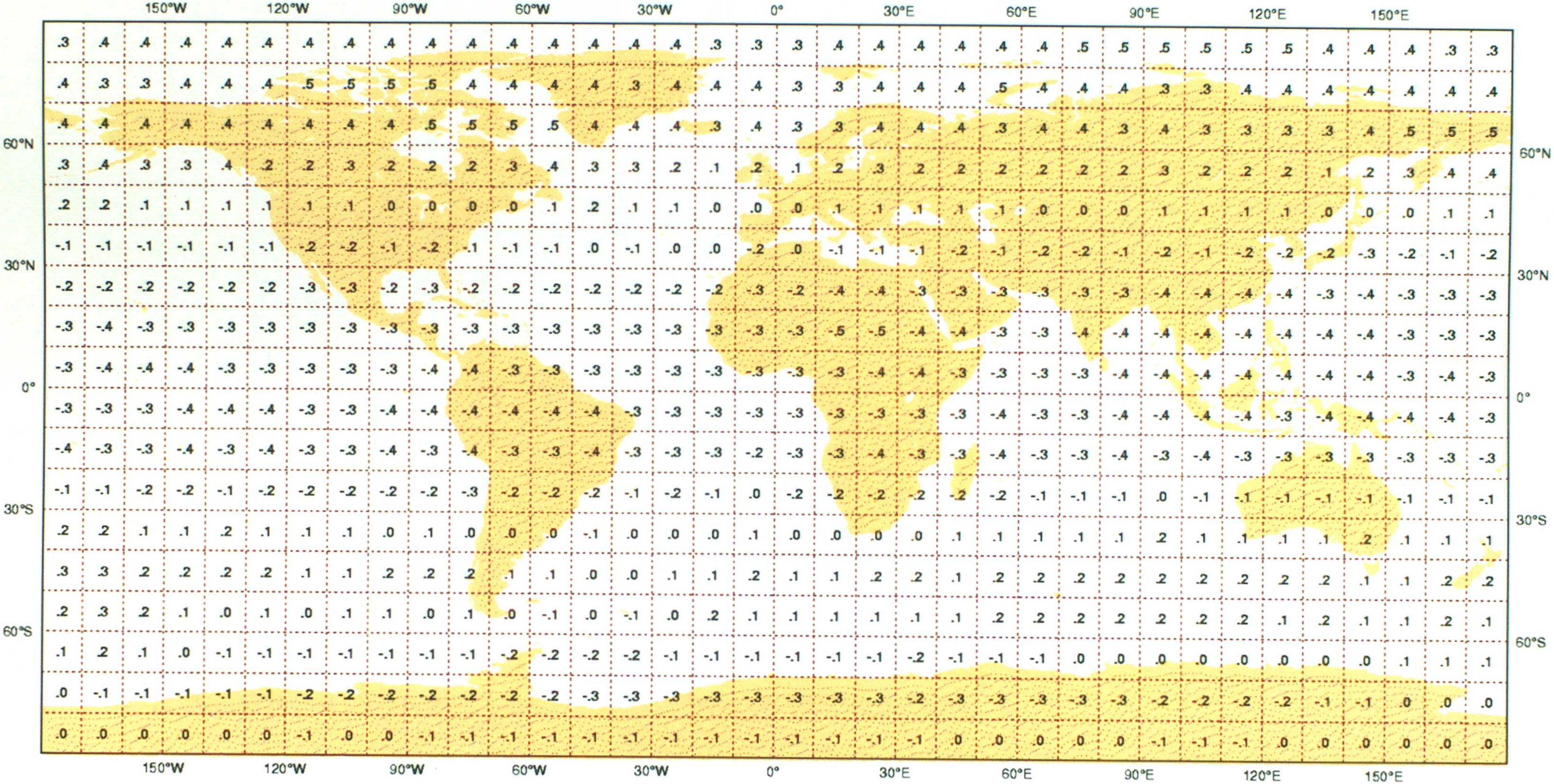

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .3 .3 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .5 .5 .4 .4 .4 .3 .3
.4 .3 .3 .4 .4 .4 .5 .5 .5 .5 .4 .4 .4 .4 .3 .4 .4 .4 .3 .3 .4 .4 .4 .5 .4 .4 .4 .3 .3 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .5 .4 .4 .4 .3 .4 .3 .3 .4 .4 .4 .3 .4 .4 .3 .4 .3 .3 .3 .3 .4 .5 .5 .5
.3 .4 .3 .3 .4 .2 .2 .3 .2 .2 .2 .3 .4 .3 .3 .2 .1 .2 .1 .2 .3 .2 .2 .2 .2 .2 .2 .3 .2 .2 .2 .1 .2 .3 .4 .4
.2 .2 .1 .1 .1 .1 .1 .1 .0 .0 .0 .0 .1 .2 .1 .1 .0 .0 .0 .1 .1 .1 .1 .1 .0 .0 .0 .1 .1 .1 .1 .0 .0 .0 .1 .1
-.1 -.1 -.1 -.1 -.1 -.1 -.2 -.2 -.1 -.2 -.1 -.1 -.1 .0 -.1 .0 .0 -.2 .0 -.1 -.1 -.1 -.2 -.1 -.2 -.2 -.1 -.2 -.1 -.2 -.2 -.2 -.3 -.2 -.1 -.2
-.2 -.2 -.2 -.2 -.2 -.2 -.3 -.3 -.2 -.3 -.2 -.2 -.2 -.2 -.2 -.2 -.2 -.3 -.2 -.4 -.4 -.3 -.3 -.3 -.3 -.3 -.3 -.4 -.4 -.4 -.4 -.3 -.4 -.3 -.3 -.3
-.3 -.4 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.5 -.5 -.4 -.4 -.3 -.3 -.4 -.4 -.4 -.4 -.4 -.4 -.4 -.4 -.3 -.3 -.3
-.3 -.4 -.4 -.4 -.3 -.3 -.3 -.3 -.3 -.4 -.4 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.4 -.4 -.3 -.3 -.3 -.3 -.4 -.4 -.4 -.4 -.4 -.4 -.4 -.3 -.4 -.3
-.3 -.3 -.3 -.4 -.4 -.4 -.3 -.3 -.4 -.4 -.4 -.4 -.4 -.4 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.4 -.3 -.3 -.4 -.4 -.4 -.4 -.3 -.4 -.4 -.4 -.4 -.3
-.4 -.3 -.3 -.4 -.3 -.4 -.3 -.3 -.4 -.3 -.4 -.3 -.3 -.4 -.3 -.3 -.3 -.2 -.3 -.3 -.4 -.3 -.3 -.4 -.3 -.3 -.4 -.3 -.4 -.3 -.3 -.3 -.3 -.3 -.3 -.3
-.1 -.1 -.2 -.2 -.1 -.2 -.2 -.2 -.2 -.2 -.3 -.2 -.2 -.2 -.1 -.2 -.1 .0 -.2 -.2 -.2 -.2 -.2 -.2 -.1 -.1 -.1 .0 -.1 -.1 -.1 -.1 -.1 -.1 -.1 -.1
.2 .2 .1 .1 .2 .1 .1 .1 .0 .1 .0 .0 .0 -.1 .0 .0 .0 .1 .0 .0 .0 .0 .1 .1 .1 .1 .1 .2 .1 .1 .1 .1 .2 .1 .1 .1
.3 .3 .2 .2 .2 .2 .1 .1 .2 .2 .2 .1 .1 .0 .0 .1 .1 .2 .1 .1 .2 .2 .1 .2 .2 .2 .2 .2 .2 .2 .2 .2 .1 .1 .2 .2
.2 .3 .2 .1 .0 .1 .0 .1 .1 .0 .1 .0 -.1 .0 -.1 .0 .2 .1 .1 .1 .1 .1 .1 .2 .2 .2 .2 .2 .2 .2 .1 .2 .1 .1 .2 .1
.1 .2 .1 .0 -.1 -.1 -.1 -.1 -.1 -.1 -.1 -.2 -.2 -.2 -.2 -.1 -.1 -.1 -.1 -.1 -.1 -.2 -.1 -.1 -.1 .0 .0 .0 .0 .0 .0 .0 .0 .1 .1 .1
.0 -.1 -.1 -.1 -.1 -.1 -.2 -.2 -.2 -.2 -.2 -.2 -.2 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.3 -.2 -.3 -.3 -.3 -.3 -.3 -.2 -.2 -.2 -.2 -.1 -.1 .0 .0 .0
.0 .0 .0 .0 .0 .0 -.1 .0 .0 -.1 -.1 -.1 -.1 -.1 -.1 -.1 -.1 -.1 -.1 -.1 -.1 -.1 .0 .0 .0 .0 .0 -.1 -.1 -.1 .0 .0 .0 .0 .0 .0

Figure 52. ATOVS SD O-B brightness temperature differences (deg C). JUNE 2005
Channel: AMSUA-7 (300 hPa)
NOAA16, using all observations

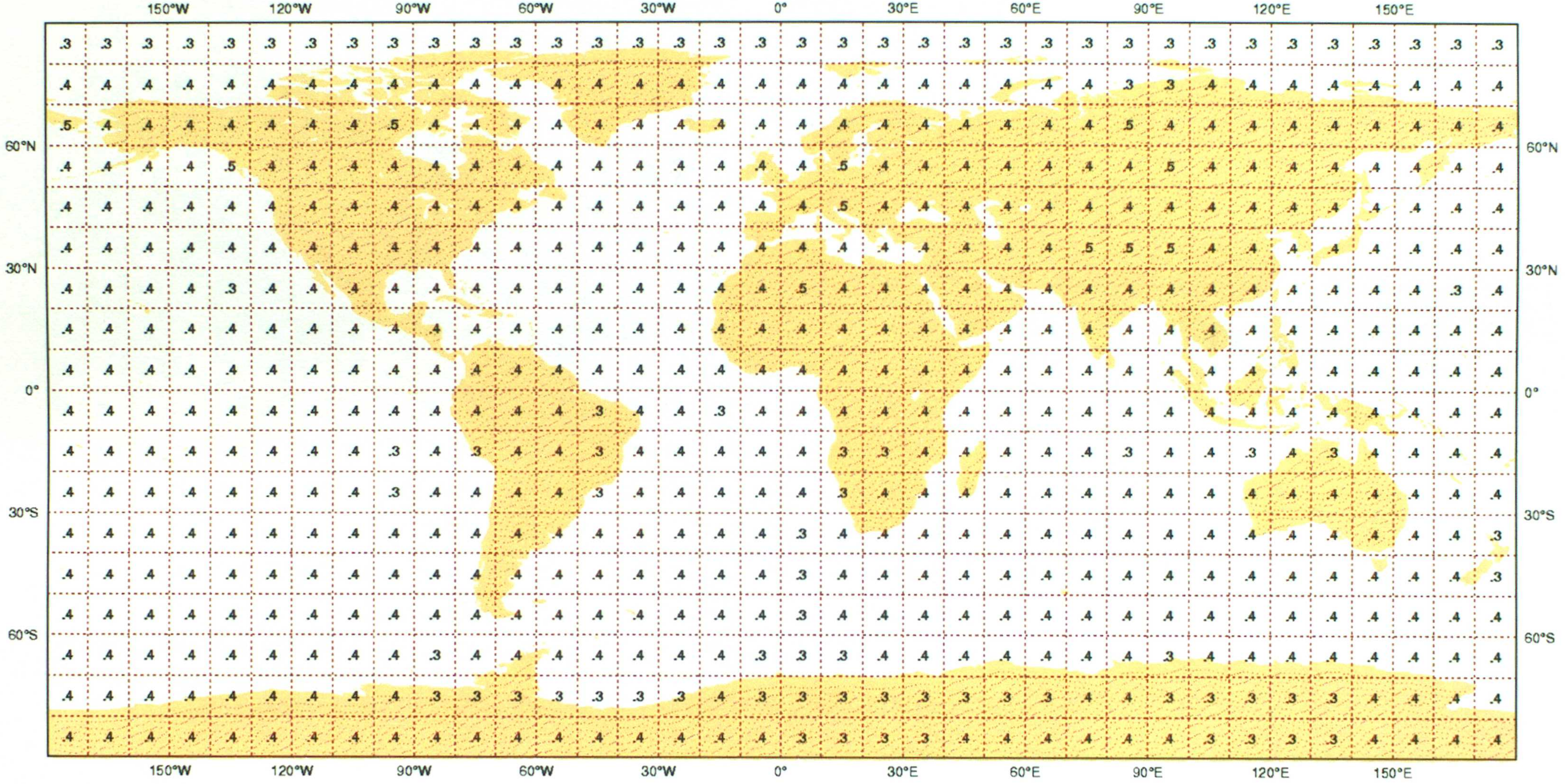
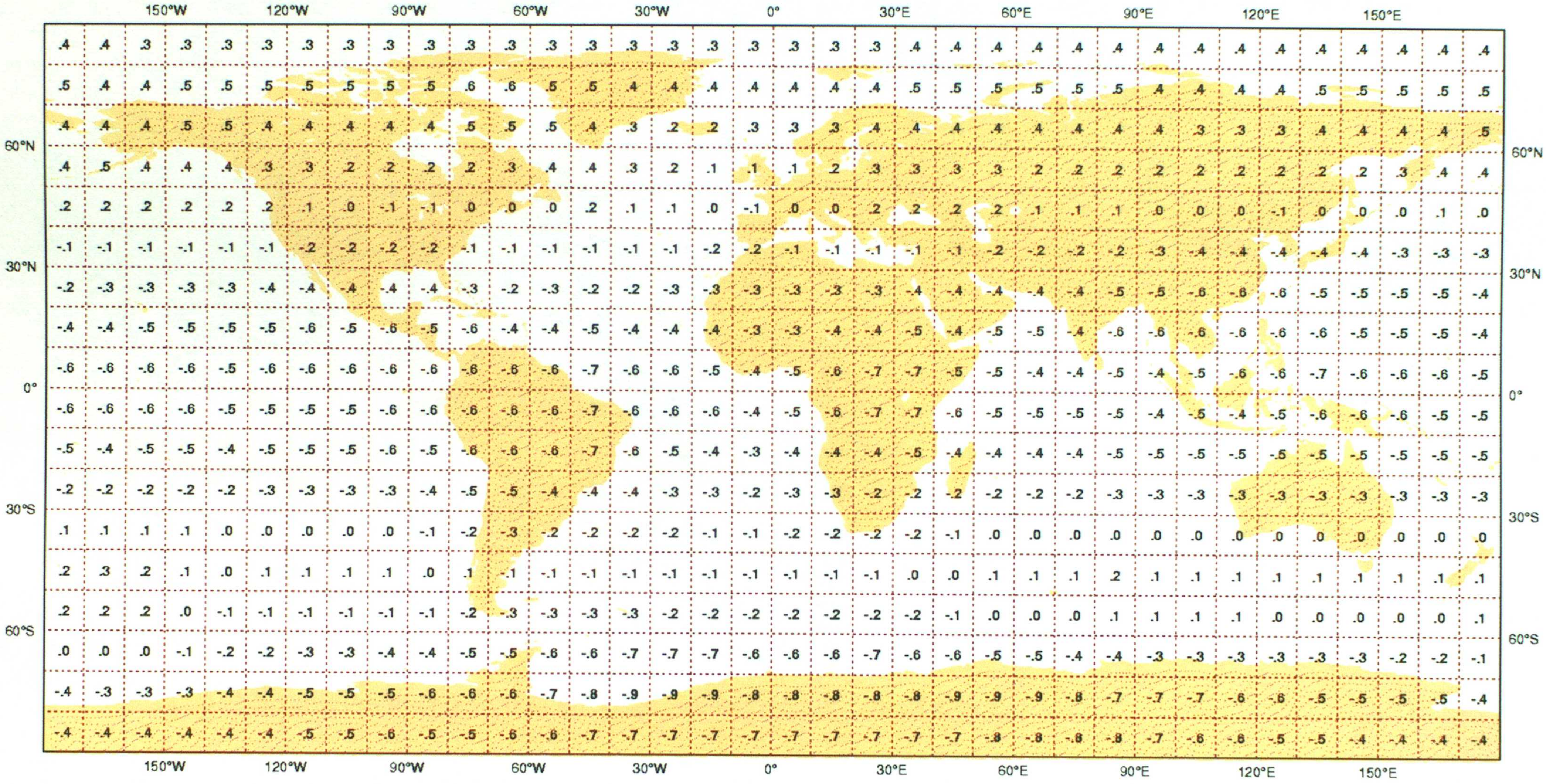

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S
.3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3 .3
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .3 .4 .4 .4 .4 .4 .4 .4 .4
.5 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .5 .5 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .5 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .3 .4 .4 .3 .4 .4 .4 .4 .4 .3 .3 .4 .4 .4 .4 .4 .3 .4 .4 .3 .4 .3 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .3 .3 .3 .4 .4 .4 .4 .4 .4 .4 .3 .4 .4 .4 .4 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .3 .3 .3 .3 .3 .3 .4 .3 .3 .3 .3 .3 .3 .3 .3 .4 .4 .3 .3 .3 .3 .3 .4 .4 .4 .4
.4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .4 .3 .3 .3 .3 .4 .4 .4 .4 .4 .4 .3 .3 .3 .3 .4 .4 .4 .4

Figure 53. ATOVS MEAN O-B brightness temperature differences (deg C). JUNE 2005
Channel: AMSUA-9 (100 hPa)
NOAA16, using all observations



.4	.4	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4	.4
.5	.4	.4	.5	.5	.5	.5	.5	.5	.5	.6	.6	.5	.5	.4	.4	.4	.4	.4	.4	.4	.5	.5	.5	.5	.5	.5	.4	.4	.4	.4	.5	.5	.5	.5	.5
.4	.4	.4	.5	.5	.4	.4	.4	.4	.4	.5	.5	.5	.4	.3	.2	.2	.3	.3	.3	.4	.4	.4	.4	.4	.4	.4	.4	.3	.3	.3	.4	.4	.4	.4	.5
.4	.5	.4	.4	.4	.3	.3	.2	.2	.2	.2	.3	.4	.4	.3	.2	.1	.1	.1	.2	.3	.3	.3	.3	.2	.2	.2	.2	.2	.2	.2	.2	.2	.3	.4	.4
.2	.2	.2	.2	.2	.2	.1	.0	-.1	-.1	.0	.0	.0	.2	.1	.1	.0	-.1	.0	.0	.2	.2	.2	.2	.1	.1	.1	.0	.0	.0	-.1	.0	.0	.0	.1	.0
-.1	-.1	-.1	-.1	-.1	-.1	-.2	-.2	-.2	-.2	-.1	-.1	-.1	-.1	-.1	-.1	-.2	-.2	-.1	-.1	-.1	-.1	-.1	-.2	-.2	-.2	-.2	-.3	-.4	-.4	-.4	-.4	-.4	-.3	-.3	-.3
-.2	-.3	-.3	-.3	-.3	-.4	-.4	-.4	-.4	-.4	-.3	-.2	-.3	-.2	-.2	-.3	-.3	-.3	-.3	-.3	-.3	-.4	-.4	-.4	-.4	-.4	-.5	-.5	-.6	-.6	-.6	-.5	-.5	-.5	-.5	-.4
-.4	-.4	-.5	-.5	-.5	-.5	-.6	-.5	-.6	-.5	-.6	-.4	-.4	-.5	-.4	-.4	-.4	-.3	-.3	-.4	-.4	-.5	-.4	-.5	-.5	-.4	-.6	-.6	-.6	-.6	-.6	-.6	-.5	-.5	-.5	-.4
-.6	-.6	-.6	-.6	-.5	-.6	-.6	-.6	-.6	-.6	-.6	-.6	-.6	-.7	-.6	-.6	-.5	-.4	-.5	-.6	-.7	-.7	-.5	-.5	-.4	-.4	-.5	-.4	-.5	-.6	-.6	-.7	-.6	-.6	-.6	-.5
-.6	-.6	-.6	-.6	-.5	-.5	-.5	-.5	-.6	-.6	-.6	-.6	-.6	-.7	-.6	-.6	-.6	-.4	-.5	-.6	-.7	-.7	-.6	-.5	-.5	-.5	-.5	-.4	-.5	-.4	-.5	-.6	-.6	-.6	-.5	-.5
-.5	-.4	-.5	-.5	-.4	-.5	-.5	-.5	-.6	-.5	-.6	-.6	-.6	-.7	-.6	-.5	-.4	-.3	-.4	-.4	-.4	-.5	-.4	-.4	-.4	-.4	-.5	-.5	-.5	-.5	-.5	-.5	-.5	-.5	-.5	-.5
-.2	-.2	-.2	-.2	-.2	-.3	-.3	-.3	-.3	-.4	-.5	-.5	-.4	-.4	-.4	-.3	-.3	-.2	-.3	-.3	-.2	-.2	-.2	-.2	-.2	-.2	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3	-.3
.1	.1	.1	.1	.0	.0	.0	.0	.0	-.1	-.2	-.3	-.2	-.2	-.2	-.2	-.1	-.1	-.2	-.2	-.2	-.2	-.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
.2	.3	.2	.1	.0	.1	.1	.1	.1	.0	.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	-.1	.0	.0	.1	.1	.1	.1	.2	.1	.1	.1	.1	.1	.1	.1	.1
.2	.2	.2	.0	-.1	-.1	-.1	-.1	-.1	-.1	-.2	-.3	-.3	-.3	-.3	-.2	-.2	-.2	-.2	-.2	-.2	-.2	-.1	.0	.0	.0	.0	.1	.1	.1	.1	.0	.0	.0	.0	.0	.1
.0	.0	.0	-.1	-.2	-.2	-.3	-.3	-.4	-.4	-.5	-.5	-.6	-.6	-.7	-.7	-.7	-.6	-.6	-.6	-.7	-.6	-.6	-.5	-.5	-.4	-.4	-.3	-.3	-.3	-.3	-.3	-.3	-.2	-.2	-.1
-.4	-.3	-.3	-.3	-.4	-.4	-.5	-.5	-.5	-.6	-.6	-.6	-.7	-.8	-.9	-.9	-.9	-.8	-.8	-.8	-.8	-.8	-.9	-.9	-.9	-.8	-.7	-.7	-.7	-.6	-.6	-.5	-.5	-.5	-.5	-.4
-.4	-.4	-.4	-.4	-.4	-.4	-.5	-.5	-.6	-.5	-.5	-.6	-.6	-.7	-.7	-.7	-.7	-.7	-.7	-.7	-.7	-.7	-.7	-.8	-.8	-.8	-.8	-.7	-.6	-.6	-.5	-.5	-.4	-.4	-.4	-.4

Figure 54. ATOVS SD O-B brightness temperature differences (deg C). JUNE 2005
Channel: AMSUA-9 (100 hPa)
NOAA16, using all observations

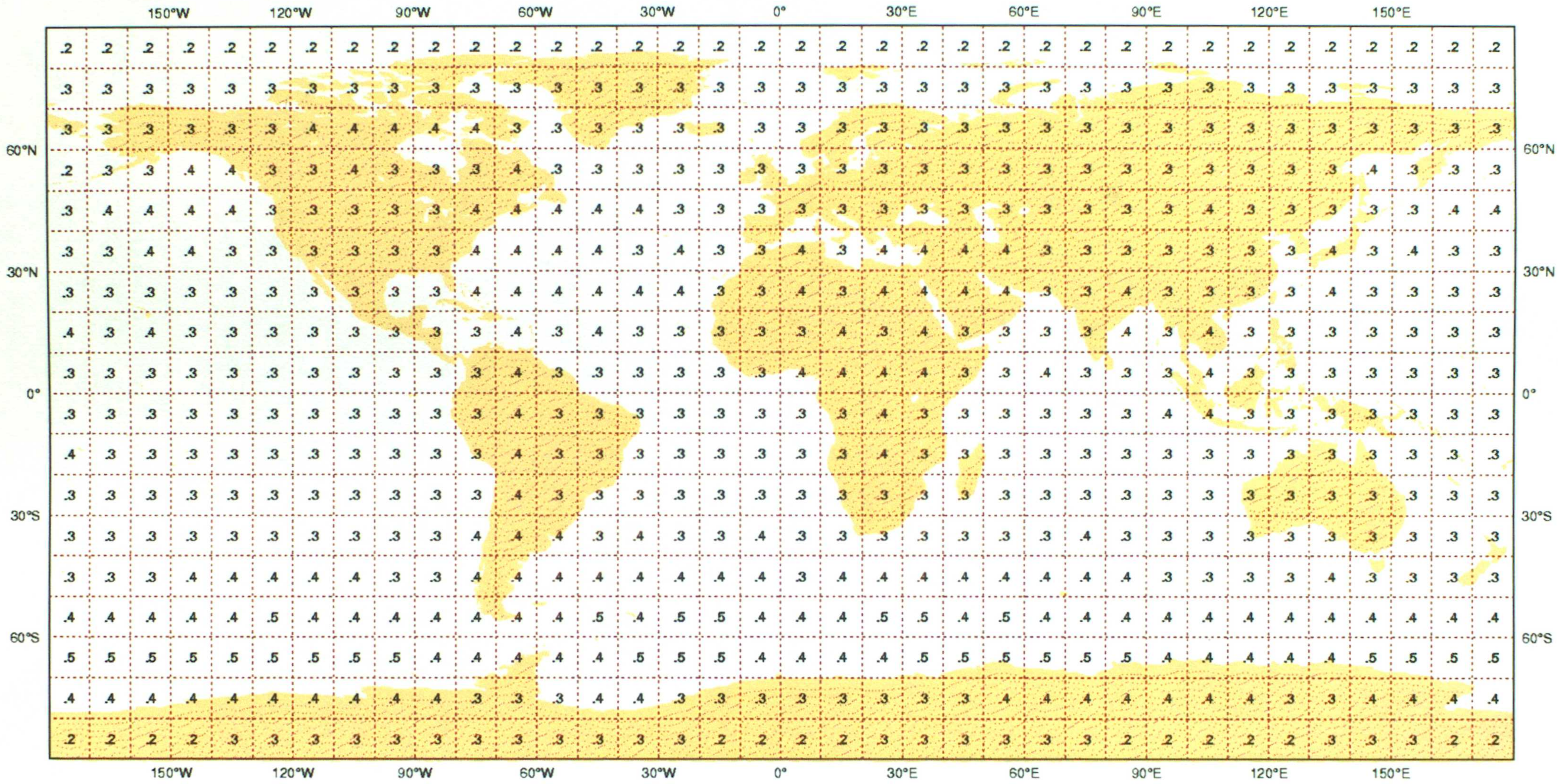

150°W
120°W
90°W
60°W
30°W
0°
30°E
60°E
90°E
120°E
150°E
60°N
30°N
0°
30°S
60°S

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: EXETER
MONTH: June 2005

Monitoring procedures		
Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoy.
Area monitored		:10°N - 80°N, 85°W - 0°W
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:All hours combined.
Elements monitored		:Mean sea-level pressure (hPa) :Wind speed (m s^{-1}) :Wind direction (degrees)
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. A positive bias indicates the wind observation is veered to the background**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors
GROSS ERROR LIMITS	:15 hPa (pressure) :25 m s^{-1} (Vector Wind)	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
13534	34.9	-25.5	P	739	0	4	0.4	-0.3	0.5
41539	26.3	-71.2	P	721	0	7	0.5	1.7	1.7
41540	41.6	-44.7	P	723	0	6	0.5	0.8	1.0
41542	26.2	-71.4	P	730	0	6	0.5	0.6	0.8
41543	26.7	-61.3	P	746	0	5	0.5	0.1	0.5
41544	19.7	-60.0	P	721	0	5	0.5	0.6	0.8
41545	24.8	-69.7	P	741	0	6	0.5	1.0	1.1
41663	17.3	-62.7	P	1623	0	100	0.7	-1.7	1.8
41927	26.6	-71.2	P	589	1	34	0.8	-0.1	0.8
41929	31.2	-70.2	P	705	0	40	0.5	0.6	0.8
41931	35.7	-69.1	P	586	0	36	0.6	0.3	0.7
41934	27.7	-73.2	P	679	0	39	0.6	-0.7	0.9
41935	29.2	-72.2	P	615	0	36	0.6	-0.1	0.6
41939	35.5	-48.6	P	650	1	100	1.2	-2.9	3.1
44549	53.2	-30.4	P	613	0	4	0.5	0.1	0.5
44550	48.3	-32.2	P	621	0	4	0.6	0.1	0.6
44607	39.4	-36.8	P	752	0	6	0.5	-0.1	0.5
44608	39.9	-36.6	P	757	0	6	0.5	-0.3	0.6
44609	48.3	-30.5	P	1091	0	46	0.5	-0.2	0.6
44610	53.6	-38.3	P	720	0	3	0.6	-0.4	0.7
44611	52.1	-32.2	P	713	0	4	0.5	-0.2	0.6
44612	60.5	-17.2	P	696	0	5	0.5	0.2	0.5
44615	44.8	-50.0	P	744	0	4	0.5	-0.3	0.6
44628	29.6	-28.6	P	688	0	4	0.3	-0.4	0.5
44635	41.8	-51.1	P	323	1	20	1.6	0.1	1.6
44636	44.0	-58.9	P	199	0	18	0.6	-0.1	0.6
44637	44.0	-58.3	P	199	0	18	0.6	0.2	0.7
44722	48.0	-30.4	P	688	0	3	0.5	-0.1	0.5
44723	63.0	-37.9	P	748	0	6	0.7	-0.5	0.8
44725	55.4	-45.5	P	743	0	5	0.6	0.2	0.6
44726	49.7	-47.4	P	724	0	4	0.5	-0.5	0.7
44727	46.2	-36.0	P	733	0	4	0.6	0.0	0.6
44728	50.2	-34.9	P	739	0	5	0.7	0.2	0.8
44729	46.5	-55.2	P	739	0	4	0.5	-0.9	1.1
44743	41.8	-12.9	P	614	0	4	0.5	0.2	0.5
44745	47.7	-4.2	P	196	0	2	0.5	-0.2	0.5
44775	56.6	-24.1	P	837	1	55	0.8	-0.1	0.8
44777	32.0	-50.4	P	126	5	48	2.1	0.9	2.3
44778	35.7	-26.1	P	133	3	43	1.0	0.3	1.1
44831	51.8	-46.8	P	263	0	5	0.7	-0.4	0.8
44832	56.3	-40.5	P	266	0	7	0.6	-0.4	0.7
44833	44.9	-60.3	P	267	0	6	0.5	-0.2	0.6
44842	59.0	-32.0	P	936	0	25	0.6	-0.2	0.6
44843	63.4	-28.1	P	955	0	26	0.5	0.0	0.5
44844	55.2	-37.3	P	1082	0	35	0.5	-0.1	0.5
44845	43.5	-49.8	P	962	0	30	0.5	-0.2	0.6
44846	44.1	-34.8	P	771	0	10	0.5	-0.2	0.5
44847	42.1	-36.3	P	777	0	10	0.4	-0.1	0.5
44848	41.6	-43.5	P	775	0	9	0.6	-0.3	0.6
47555	45.4	-75.7	P	5	0	100	0.4	-9.6	9.6
62501	44.8	-8.6	P	632	0	3	0.5	-0.2	0.5
62502	46.7	-5.7	P	864	0	35	0.6	0.2	0.6
62503	46.6	-5.6	P	627	0	3	0.4	0.1	0.4
62510	38.0	-21.3	P	738	0	5	0.4	0.0	0.4
62511	47.2	-11.5	P	638	0	3	0.4	0.5	0.6
62513	48.7	-25.4	P	399	18	20	0.4	-0.1	0.5
62514	64.6	-30.8	P	737	0	5	0.7	-0.3	0.7
62556	31.9	-20.2	P	718	0	5	0.4	-0.1	0.4
62557	30.2	-19.4	P	687	0	3	0.6	-0.1	0.6
62560	44.9	-16.1	P	872	0	29	0.8	0.6	1.0

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
62562	49.4	-14.9	P	649	0	5	0.8	0.8	1.1
62563	55.1	-9.0	P	727	0	5	0.4	-0.2	0.4
62564	44.7	-25.0	P	749	0	7	0.4	0.5	0.6
62566	58.1	-17.5	P	721	0	4	0.6	0.0	0.6
62567	46.1	-12.6	P	657	0	2	0.4	-0.3	0.5
62901	51.5	-22.5	P	760	0	10	0.5	-0.2	0.6
62907	46.0	-6.7	P	191	0	5	0.5	-0.1	0.5
62908	45.7	-3.8	P	175	1	2	0.5	-0.1	0.5
62909	46.9	-5.5	P	139	0	5	0.4	-0.1	0.4
62910	44.0	-3.7	P	151	0	4	0.5	-0.3	0.6
62926	44.8	-5.7	P	217	0	5	0.4	-0.1	0.4
62927	46.6	-6.8	P	59	0	0	0.4	-0.2	0.4
62928	46.6	-5.7	P	158	0	3	0.5	-0.1	0.5
62929	45.5	-4.9	P	119	0	6	0.4	-0.1	0.4
62930	44.8	-7.4	P	168	0	4	0.4	-0.1	0.4
62931	44.6	-5.6	P	281	0	5	0.4	-0.3	0.5
62932	46.1	-6.6	P	189	0	3	0.4	-0.2	0.4
62934	49.6	-18.4	P	755	0	9	0.5	-0.1	0.5
64609	62.5	-37.1	P	740	0	5	0.6	-0.1	0.6
64612	61.2	-22.9	P	734	0	4	0.5	-0.7	0.9
64929	60.2	-36.9	P	262	0	8	1.8	-0.2	1.8

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
41539	26.3	-71.2	SPEED	46	0	100	0.5	-5.5	5.5
41542	26.2	-71.4	SPEED	707	0	100	2.1	-0.4	2.2
41543	26.7	-61.3	SPEED	618	0	100	1.6	-1.9	2.5
41544	19.7	-60.0	SPEED	681	0	100	1.3	-1.9	2.3
41545	24.8	-69.7	SPEED	717	0	100	1.7	-3.6	4.0
41927	26.6	-71.2	SPEED	7	29	100	8.9	5.8	10.6
41929	31.2	-70.2	SPEED	76	4	100	4.4	2.1	4.8
41931	35.7	-69.1	SPEED	11	73	100	2.9	14.4	14.7
41934	27.7	-73.2	SPEED	7	29	100	6.9	7.7	10.3
41935	29.2	-72.2	SPEED	8	50	100	8.2	12.0	14.6
41939	35.5	-48.6	SPEED	8	13	100	7.8	14.0	16.0
62511	47.2	-11.5	SPEED	269	0	100	1.6	1.2	2.1
62566	58.1	-17.5	SPEED	609	0	100	2.0	-0.8	2.2

IDENTIFIER	LAT.	LONG.	ELEM	NOBS	PGE	%REJ	SD	BIAS	RMS
41542	26.2	-71.4	DIRN.	341	0	0	21.3	9.1	23.1
41543	26.7	-61.3	DIRN.	47	0	0	13.9	-5.6	15.0
41544	19.7	-60.0	DIRN.	246	0	0	18.4	11.7	21.8
41545	24.8	-69.7	DIRN.	16	0	0	24.8	-7.2	25.8
41927	26.6	-71.2	DIRN.	4	50	0	35.7	-78.9	86.7
41929	31.2	-70.2	DIRN.	5	60	0	1.9	-53.2	53.2
41931	35.7	-69.1	DIRN.	10	80	0	41.2	80.0	90.0
41934	27.7	-73.2	DIRN.	5	40	0	108.5	26.1	111.6
41935	29.2	-72.2	DIRN.	6	67	0	148.1	-10.1	148.5
41939	35.5	-48.6	DIRN.	3	33	0	47.7	-1.5	47.7
62511	47.2	-11.5	DIRN.	221	0	0	9.8	4.5	10.8
62566	58.1	-17.5	DIRN.	454	0	0	24.5	-1.8	24.6

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: June 2005

Monitoring procedures:

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :40°N - 70°N, 60°W - 0°W.

Standard of comparison :Background field from UKMO global model.

Observation times :All hours combined.

Level(s) monitored :300.0 - 150.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored :N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

NB: All American ACARS data are grouped together and statistics are shown at the bottom of the table as "US ACARS". All ADS reports are similarly grouped together.

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	779	0	8	1.6	0.0	512	0	5	0	6.5	0.4
ABD	49	2	18	1.3	-0.8	46	2	20	0	7.1	-0.1
ACA	1125	0	3	1.5	-0.2	695	0	4	0	6.8	0.6
AEA	429	1	3	1.3	0.2	371	0	4	0	8.2	-0.1
AFL	518	1	3	1.7	0.1	278	0	3	0	7.4	0.6
AFR	669	1	6	1.4	0.2	677	0	7	0	6.7	0.3
AIC	50	2	2	1.4	-0.7	31	0	3	0	4.4	0.7
AJM	168	1	2	1.2	-0.3	131	1	2	0	6.4	-0.2
AMT	93	1	12	1.8	0.1	90	1	14	0	8.5	-1.1
AMX	373	0	3	1.6	0.1	313	0	4	0	7.4	0.4
AUA	30	0	30	3.9	2.7	25	0	16	0	8.6	-2.2
AVA	37	0	0	1.1	0.4	37	0	0	0	5.8	0.6
AZA	317	1	6	1.7	0.1	252	0	6	0	7.7	0.2
BAL	274	0	11	1.3	0.0	275	0	12	0	7.3	0.0
BAW	517	0	13	1.8	-0.7	336	0	15	0	7.3	0.2
BMA	126	0	2	1.1	-0.1	68	0	0	0	5.5	0.0
BPA	360	0	11	1.3	0.2	361	1	13	0	7.8	-0.7
BWA	133	1	4	1.4	0.3	115	0	4	0	7.6	0.3
CFC	26	0	4	1.3	-0.1	23	0	4	0	6.7	1.4
CFG	497	0	3	1.2	0.0	415	0	5	0	7.0	-0.3
CKS	97	1	13	2.0	0.6	56	0	9	0	10.7	-0.3
CLX	289	0	2	1.4	-0.4	181	0	2	0	5.1	-0.2
CNJ	28	0	36	1.4	1.0	28	0	36	0	5.5	-1.7
COA	265	0	42	1.4	0.1	166	0	42	0	6.8	0.1
CRL	189	0	4	1.7	0.5	168	0	7	0	9.3	-0.1
CUB	110	0	3	1.7	-0.4	87	1	3	0	7.3	-0.6
DAL	281	0	15	1.6	-0.8	216	0	13	0	5.7	0.9
DCS	35	0	6	1.9	-1.2	24	0	4	0	5.1	1.4
DHL	61	5	100	6.4	-5.9	33	0	15	0	13.8	1.3
DLH	528	1	12	1.7	0.0	508	0	12	0	8.0	0.4
DRD	75	1	7	1.9	-0.1	75	0	4	0	5.6	0.0
EDW	48	0	0	1.2	0.0	35	0	0	0	3.7	-0.4
EEZ	101	0	8	1.4	-0.1	97	0	9	0	6.5	0.7
EIA	194	0	14	1.5	-0.3	188	1	100	0	22.8	5.4
EIN	33	0	6	1.4	0.1	23	0	9	0	10.0	1.1
ELY	113	1	3	1.5	-0.3	72	0	7	0	7.7	1.1
ETH	29	0	7	0.8	0.0	30	0	7	0	3.9	1.0
FCA	148	1	6	1.5	0.0	107	1	4	0	6.0	0.0
FDX	557	1	40	1.5	0.2	397	0	38	0	6.7	0.5
FIN	455	0	4	1.7	0.2	362	0	4	0	7.0	-0.1
FWI	269	0	4	1.7	-0.6	274	0	3	0	5.9	0.2
GAF	37	0	3	1.9	-1.4	20	0	5	0	11.8	-0.7
GCO	104	0	12	1.2	0.2	104	1	100	0	11.1	1.2
GRL	107	0	2	1.8	0.2	95	0	0	0	3.7	0.4
GTI	149	4	31	3.7	1.7	141	0	16	0	7.1	0.7
IBE	1625	0	5	1.6	0.4	1616	0	6	0	7.2	0.2
ICE	1181	0	2	1.5	-0.3	720	0	1	0	5.5	0.6
ISR	56	0	4	1.9	-0.2	38	0	3	0	6.6	-0.3
IWD	183	1	3	1.4	0.1	184	0	3	0	6.3	0.9
KLM	766	0	2	1.5	-0.1	549	0	3	0	5.5	0.3
LAN	55	0	15	1.6	-0.2	56	0	18	0	9.2	-0.3
LDI	217	0	2	1.3	0.3	169	1	3	0	7.1	0.3
LOT	651	0	3	1.7	-0.2	404	0	1	0	6.1	0.3
LTU	758	1	7	1.5	0.0	620	0	7	0	6.2	0.4
MAS	45	0	4	1.6	-0.3	21	0	5	0	4.0	-0.3
MPD	130	1	2	1.7	0.4	110	0	1	0	6.6	0.3
MPH	386	1	3	1.7	-0.9	270	0	5	0	7.8	0.0
MYT	242	0	3	1.6	0.0	186	0	3	0	5.5	0.2
NAO	64	0	13	2.3	0.5	64	2	22	0	11.1	1.4

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
NCA	42	0	2	2.0	0.0	41	0	0	0	4.1	0.5
NWA	2265	2	6	2.1	0.5	2165	0	3	0	7.4	0.3
OAE	201	0	8	1.6	-0.4	121	1	23	0	13.4	3.9
OOM	80	0	6	1.6	-0.4	49	0	4	0	3.8	0.1
PAC	199	0	12	1.8	-0.1	156	0	11	0	6.1	-0.1
PLM	117	0	2	1.8	1.3	106	0	3	0	6.6	-0.3
RAM	286	0	3	1.7	0.6	189	0	3	0	7.7	-0.4
RCH	199	1	100	2.7	-0.2	156	0	100	0	13.4	2.4
RRR	32	0	6	1.5	0.4	34	0	6	0	4.8	0.0
RZO	289	0	3	1.3	-0.4	242	0	2	0	7.0	0.2
SEU	87	0	1	1.1	-0.2	71	0	1	0	5.7	-0.1
SLM	36	0	6	1.6	0.4	36	0	3	0	3.6	0.4
SSV	135	0	1	1.6	0.2	68	0	1	0	6.3	1.1
SVA	56	0	2	1.5	0.5	35	0	6	0	7.6	0.0
TAP	311	0	3	1.4	-0.4	253	0	4	0	7.8	0.5
TCX	104	0	5	1.5	0.0	60	0	7	0	6.2	0.3
TFL	120	1	3	1.2	0.0	94	0	6	0	8.7	0.4
TSC	486	1	4	1.8	-0.6	335	0	4	0	6.7	0.0
TUB	95	0	3	1.8	-0.1	33	0	0	0	5.4	0.7
UAE	25	0	4	1.2	0.1	23	0	4	0	7.4	-0.1
UAL	55	2	76	2.8	-1.9	52	0	73	0	8.4	2.3
UPS	1222	1	52	1.5	-0.1	1170	0	52	0	7.1	0.2
USA	47	0	6	1.7	0.6	39	0	5	0	5.5	-0.4
VIR	71	0	1	1.6	-0.1	42	0	2	0	6.9	0.2
VVJ	28	0	4	1.9	-0.3	29	0	14	0	13.0	1.5
WOA	270	0	12	1.7	0.4	219	0	13	0	10.2	-0.3
XLA	81	1	4	1.4	-0.2	74	0	9	0	11.2	-0.6
YSS	21	0	5	2.0	0.2	21	0	0	0	5.4	-1.8

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
EU	29849	0	20	1.1	0.2	29849	0	19	0	4.1	0.3
TN	47	2	11	2.2	1.7	46	0	17	0	8.4	0.7
N	709	1	6	2.2	0.5	406	0	5	0	7.3	0.8
US ACARS	26238	0	33	1.4	0.2	26238	0	30	0	4.8	0.2

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: June 2005

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from selected radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from UKMO global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :100 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored

:NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	12	Z	100	19	0	13.5	14.0	-4.0
DBLK	12	Z	100	9	0	9.5	17.8	15.0
EBUQ	12	Z	100	6	0	9.8	15.8	-12.3
ELML7	00	Z	100	10	0	7.9	8.5	-3.0
ELML7	12	Z	100	10	0	11.9	12.0	-1.8
FQFL	00	Z	100	8	0	15.4	15.5	-1.1
FQFL	12	Z	100	10	0	8.3	12.5	-9.3
FQFM	00	Z	100	10	0	21.3	22.2	-6.2
FQFM	12	Z	100	7	0	9.7	11.0	-5.1
HPII	00	Z	100	4	0	10.0	16.8	13.5
HPII	12	Z	100	10	0	9.8	16.3	-13.1
KRPD	00	Z	100	10	0	12.2	13.2	5.0
KRPD	12	Z	100	12	0	24.6	30.4	17.8
LDWR	00	Z	100	27	0	10.3	16.5	12.9
LDWR	12	Z	100	28	0	12.2	17.3	12.3
OXVH2	00	Z	100	4	0	7.0	31.8	31.0
OXVH2	12	Z	100	3	0	6.8	36.3	35.7
OXYH2	00	Z	100	4	0	7.0	26.0	25.0
OXYH2	12	Z	100	5	0	8.8	29.3	28.0
SHIP	00	Z	100	1	0	0.0	20.0	20.0
SHIP	12	Z	100	1	0	0.0	22.0	22.0
SKUN	00	Z	100	9	0	15.4	45.0	42.2
SKUN	12	Z	100	9	0	10.6	43.4	42.1
V2UQ	00	Z	100	8	0	12.1	20.2	16.3
V2UQ	12	Z	100	7	0	8.0	15.1	12.9
V2XM	00	Z	100	3	0	4.1	30.9	30.7
V2XM	12	Z	100	4	0	8.6	40.2	39.3
WAAH	00	Z	100	12	0	11.4	32.1	30.0
WAAH	12	Z	100	14	0	14.3	42.2	39.7
WPKD	00	Z	100	14	0	9.3	17.6	14.9
WPKD	12	Z	100	14	0	9.4	11.5	6.6
ZCBE7	00	Z	100	3	0	59.6	90.9	68.7
ZCBE7	12	Z	100	1	0	0.0	44.0	44.0
ZCBP6	00	Z	100	8	0	11.7	37.0	35.1
ZCBP6	12	Z	100	7	0	13.4	44.1	42.0
03953	00	Z	100	29	0	14.0	22.1	17.1
03953	12	Z	100	30	0	18.1	22.3	13.1
04018	00	Z	100	29	0	9.8	20.7	18.2
04018	12	Z	100	30	0	12.1	17.3	12.3
04220	00	Z	100	27	0	11.2	27.7	25.3
04220	12	Z	100	26	0	48.9	59.2	33.3
04270	00	Z	100	29	0	11.1	26.5	24.1
04270	12	Z	100	30	0	12.4	26.3	23.2
04339	00	Z	100	27	2	7.4	28.9	28.0
04339	12	Z	100	29	0	9.4	26.6	24.9
04360	00	Z	100	29	0	10.0	33.4	31.9
04360	12	Z	100	30	0	9.7	28.1	26.4
08001	00	Z	100	24	0	12.0	21.5	17.8
08001	12	Z	100	26	0	11.5	19.3	15.5
08508	00	Z	100	26	0	10.2	17.6	14.3
08508	12	Z	100	29	0	14.1	15.1	5.3
08522	12	Z	100	27	0	8.5	8.6	0.9
08594	12	Z	100	23	0	17.4	17.9	-4.2
71600	00	Z	100	28	0	14.1	14.5	-3.2
71600	12	Z	100	30	0	14.7	18.9	11.8
72201	00	Z	100	27	0	15.2	18.9	11.2
72201	12	Z	100	29	0	9.5	25.6	23.8
72402	00	Z	100	28	0	9.6	32.3	30.8
72402	12	Z	100	29	0	9.8	17.5	14.4

74494	00	Z	100	26	0	10.8	11.9	5.1
74494	12	Z	100	30	0	15.2	16.2	-5.7
78016	00	Z	100	27	0	8.2	12.9	10.0
78016	12	Z	100	30	0	13.8	25.6	21.6

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: June 2005

Monitoring procedures:

Period :One calendar month.

Data monitored :Reports from selected radiosonde TEMPs.

Area monitored :0°N - 90°N, 100°W - 40°E

Standard of comparison :Background field from UKMO global model.

Position :Average latitude and longitude for period.

Observation times :00, 12 UTC.

Level monitored :500 hPa.

Element monitored :GEOPOTENTIAL HEIGHT in metres

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	12	Z	500	20	0	5.0	16.4	-15.6
DBLK	12	Z	500	9	0	5.8	5.8	0.6
EBUQ	12	Z	500	7	0	3.8	13.7	-13.1
ELML7	00	Z	500	10	0	4.8	8.1	-6.5
ELML7	12	Z	500	10	0	7.1	7.6	-2.7
FQFL	00	Z	500	9	0	8.6	10.6	-6.2
FQFL	12	Z	500	10	0	3.7	8.8	-8.0
FQFM	00	Z	500	10	0	7.8	17.1	-15.2
FQFM	12	Z	500	9	0	4.2	14.4	-13.8
HPII	00	Z	500	8	0	7.4	14.6	-12.6
HPII	12	Z	500	10	0	6.5	13.3	-11.6
KRPD	00	Z	500	11	0	5.0	5.9	-3.0
KRPD	12	Z	500	12	0	22.8	23.1	3.3
LDWR	00	Z	500	28	0	7.5	7.6	0.9
LDWR	12	Z	500	28	0	6.6	7.0	2.3
OXVH2	00	Z	500	5	0	4.3	12.4	11.6
OXVH2	12	Z	500	4	0	10.4	18.7	15.5
OXYH2	00	Z	500	4	0	7.8	12.3	9.5
OXYH2	12	Z	500	5	0	3.2	15.3	15.0
PACDG	00	Z	500	1	0	0.0	3.0	3.0
SHIP	00	Z	500	1	0	0.0	29.0	29.0
SHIP	12	Z	500	1	0	0.0	22.0	22.0
SKUN	00	Z	500	9	0	11.4	34.7	32.8
SKUN	12	Z	500	9	0	8.4	37.4	36.4
V2UQ	00	Z	500	8	0	4.8	4.9	1.0
V2UQ	12	Z	500	7	0	3.7	4.5	2.6
V2XM	00	Z	500	3	0	3.7	13.5	13.0
V2XM	12	Z	500	4	0	6.9	25.2	24.3
WAAH	00	Z	500	12	0	10.8	32.6	30.8
WAAH	12	Z	500	17	0	8.1	30.9	29.8
WPKD	00	Z	500	14	0	5.9	6.0	-0.8
WPKD	12	Z	500	14	0	5.0	5.3	-1.8
ZCBE7	00	Z	500	4	0	49.2	55.7	26.0
ZCBE7	12	Z	500	1	0	0.0	3.0	3.0
ZCBP6	00	Z	500	8	0	8.3	27.2	25.9
ZCBP6	12	Z	500	7	0	13.2	31.2	28.3
03953	00	Z	500	29	0	6.8	8.6	5.3
03953	12	Z	500	30	0	4.6	5.4	2.9
04018	00	Z	500	29	0	6.6	10.0	7.4
04018	12	Z	500	30	0	8.1	11.0	7.5
04220	00	Z	500	27	0	9.9	15.9	12.5
04220	12	Z	500	27	0	15.6	21.3	14.5
04270	00	Z	500	29	0	9.7	11.6	6.4
04270	12	Z	500	30	0	8.2	11.2	7.6
04339	00	Z	500	27	2	7.0	19.0	17.7
04339	12	Z	500	29	0	7.3	17.3	15.6
04360	00	Z	500	29	0	7.2	14.9	13.1
04360	12	Z	500	30	0	6.5	11.7	9.7
08001	00	Z	500	25	0	8.7	10.0	4.9
08001	12	Z	500	27	0	6.1	6.5	2.2
08508	00	Z	500	27	0	9.5	9.6	-1.0
08508	12	Z	500	30	0	7.6	8.7	-4.1
08522	12	Z	500	27	0	6.0	7.6	-4.6
08594	12	Z	500	24	0	5.4	9.7	-8.0
71600	00	Z	500	28	0	7.0	8.0	-3.8
71600	12	Z	500	30	0	6.0	7.4	4.3
72201	00	Z	500	28	0	5.2	5.4	-1.3
72201	12	Z	500	30	0	5.3	5.3	0.7
72402	00	Z	500	28	0	6.5	8.3	5.2
72402	12	Z	500	29	0	7.3	8.1	3.6

74494	00	Z	500	27	0	5.4	5.6	-1.2
74494	12	Z	500	30	0	5.4	5.7	1.9
78016	00	Z	500	27	0	5.4	9.0	7.2
78016	12	Z	500	30	0	5.3	12.3	11.0

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: June 2005

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.2	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	12	V	100	17	0	0	6.5	2.4	1.0
DBLK	12	V	100	9	0	0	4.6	-0.4	1.0
EBUQ	12	V	100	5	0	0	6.4	-4.1	-2.4
ELML7	00	V	100	10	0	100	10.6	-9.0	-3.9
ELML7	12	V	100	10	0	100	10.1	-4.2	-3.3
FQFL	00	V	100	7	0	0	3.6	0.2	1.5
FQFL	12	V	100	9	0	0	5.1	0.6	-0.8
FQFM	00	V	100	10	0	0	3.4	-0.7	0.8
FQFM	12	V	100	8	0	0	3.7	0.7	-0.5
HPII	00	V	100	4	0	0	5.2	-2.8	0.5
HPII	12	V	100	10	0	0	4.0	0.0	-0.7
KRPD	00	V	100	5	0	40	2.3	-0.1	0.2
KRPD	12	V	100	5	0	40	3.7	-0.7	0.2
LDWR	00	V	100	27	0	0	2.2	-0.1	-0.4
LDWR	12	V	100	28	0	0	2.5	0.1	0.6
OXVH2	00	V	100	3	0	0	5.0	-2.0	1.9
OXVH2	12	V	100	2	0	0	2.9	-2.1	-1.3
OXYH2	00	V	100	3	0	33	10.2	0.3	-7.8
OXYH2	12	V	100	1	0	0	2.3	1.7	-1.6
SKUN	00	V	100	9	0	0	2.6	-0.5	-0.4
SKUN	12	V	100	9	0	0	3.5	0.6	0.3
V2UQ	00	V	100	8	0	0	4.1	0.7	-1.1
V2UQ	12	V	100	7	0	0	4.4	-0.6	0.3
V2XM	00	V	100	3	0	0	2.0	-0.5	-0.7
V2XM	12	V	100	4	0	0	1.8	0.3	-0.6
WAAH	00	V	100	12	0	0	3.9	0.1	-1.7
WAAH	12	V	100	13	0	0	3.7	0.8	-1.5
WPKD	00	V	100	14	0	0	4.1	-0.1	0.0
WPKD	12	V	100	14	0	0	3.5	0.2	0.3
ZCBP6	00	V	100	7	0	0	3.5	0.1	-0.4
ZCBP6	12	V	100	7	0	14	9.7	-1.6	1.7
03953	00	V	100	29	0	0	2.3	0.6	0.5
03953	12	V	100	30	0	0	2.6	-0.6	0.1
04018	00	V	100	28	0	0	3.9	-0.5	-0.8
04018	12	V	100	30	0	0	2.3	-0.5	-0.4
04220	00	V	100	26	0	0	2.3	-0.9	-0.1
04220	12	V	100	26	0	0	2.1	-0.3	0.1
04270	00	V	100	29	0	0	3.4	-0.8	0.5
04270	12	V	100	28	0	0	3.1	-0.8	0.8
04339	00	V	100	27	0	0	4.9	0.0	0.2
04339	12	V	100	28	0	0	4.2	-0.1	0.6
04360	00	V	100	28	0	0	2.3	-0.2	0.2
04360	12	V	100	30	0	0	3.3	-0.1	0.9
08001	00	V	100	24	0	0	4.3	1.4	1.0
08001	12	V	100	25	0	0	4.2	-1.1	-0.8
08508	00	V	100	16	0	0	3.3	0.3	-0.4
08508	12	V	100	16	0	0	3.5	0.2	0.1
08522	12	V	100	25	0	0	4.6	0.5	0.0
08594	12	V	100	24	0	100	4.9	-0.5	-0.8
71600	00	V	100	27	0	0	3.5	0.0	-0.6
71600	12	V	100	30	0	0	3.6	-0.3	0.7
72201	00	V	100	27	0	0	3.1	0.4	-0.9
72201	12	V	100	29	0	0	3.3	0.9	-0.2
72402	00	V	100	28	0	0	3.8	-0.1	-0.1
72402	12	V	100	29	0	0	3.2	0.2	0.0
74494	00	V	100	26	0	100	2.9	0.3	0.8
74494	12	V	100	30	0	100	2.6	0.3	-0.3
78016	00	V	100	27	0	0	5.0	-1.2	1.2
78016	12	V	100	30	0	0	4.9	-1.1	-0.6

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: EXETER
MONTH: June 2005

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from selected radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from UKMO global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
GROSS ERROR LIMITS	:Defined in Appendix I.2	

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	12	V	500	19	0	0	5.7	1.4	1.3
DBLK	12	V	500	9	0	0	4.1	-0.3	0.0
EBUQ	12	V	500	6	0	0	2.8	-0.7	-0.7
ELML7	00	V	500	9	0	100	9.6	-7.9	-4.7
ELML7	12	V	500	10	0	100	9.4	-4.6	-2.6
FQFL	00	V	500	8	0	0	3.3	-0.4	-0.3
FQFL	12	V	500	9	0	0	3.6	-0.6	-1.5
FQFM	00	V	500	10	0	0	3.3	0.8	0.7
FQFM	12	V	500	10	0	0	2.4	-0.1	0.0
HPII	00	V	500	8	0	0	2.5	-0.5	0.0
HPII	12	V	500	10	0	0	4.3	-1.2	-2.0
KRPD	00	V	500	5	0	40	3.7	0.7	-1.2
KRPD	12	V	500	6	0	50	2.6	0.2	0.3
LDWR	00	V	500	28	0	0	3.5	0.3	0.5
LDWR	12	V	500	28	0	0	3.3	0.1	0.3
OXVH2	00	V	500	5	0	0	2.1	-0.3	1.1
OXVH2	12	V	500	2	0	0	2.5	0.0	-1.0
OXYH2	00	V	500	2	0	0	3.3	0.6	-1.5
OXYH2	12	V	500	3	0	0	2.4	0.7	-1.2
PACDG	00	V	500	1	0	0	2.2	2.0	-1.0
SKUN	00	V	500	9	0	0	3.8	-0.4	-0.4
SKUN	12	V	500	9	0	0	3.3	-0.8	0.0
V2UQ	00	V	500	8	0	0	5.1	-1.1	-0.4
V2UQ	12	V	500	7	0	0	2.4	0.3	-0.1
V2XM	00	V	500	3	0	0	0.8	0.1	0.0
V2XM	12	V	500	4	0	0	2.3	-0.7	-0.9
WAAH	00	V	500	12	0	0	2.4	1.0	-0.3
WAAH	12	V	500	17	0	0	3.7	-1.1	0.5
WPKD	00	V	500	14	0	0	3.3	-0.5	0.0
WPKD	12	V	500	14	0	0	4.4	0.6	0.3
ZCBP6	00	V	500	8	0	0	3.2	-1.2	0.6
ZCBP6	12	V	500	7	0	0	2.8	-1.3	-0.5
03953	00	V	500	29	0	0	3.4	0.7	-0.1
03953	12	V	500	30	0	0	3.1	0.4	-0.1
04018	00	V	500	28	0	0	3.3	-0.8	0.0
04018	12	V	500	30	0	0	3.3	0.0	-0.7
04220	00	V	500	27	0	0	3.6	-1.1	-1.0
04220	12	V	500	27	0	0	4.4	-0.8	-0.3
04270	00	V	500	29	0	0	4.4	-1.5	0.3
04270	12	V	500	29	0	0	3.7	0.0	0.2
04339	00	V	500	29	0	0	4.6	-0.6	-0.8
04339	12	V	500	29	0	0	4.7	0.1	0.2
04360	00	V	500	29	0	0	3.4	0.0	-0.1
04360	12	V	500	30	0	0	3.7	-0.6	-0.5
08001	00	V	500	24	0	0	4.1	1.2	0.6
08001	12	V	500	25	0	4	5.0	0.1	-0.8
08508	00	V	500	17	0	0	2.2	-0.5	0.1
08508	12	V	500	17	0	0	2.8	0.0	1.0
08522	12	V	500	24	0	0	3.9	-1.3	-0.5
08594	12	V	500	24	0	4	5.1	0.8	-0.8
71600	00	V	500	28	0	0	2.8	-0.2	0.0
71600	12	V	500	30	0	0	3.3	0.6	-0.1
72201	00	V	500	28	0	0	3.4	0.2	-0.2
72201	12	V	500	30	0	0	3.4	-0.9	-0.5
72402	00	V	500	28	0	0	2.9	-0.3	0.8
72402	12	V	500	29	0	0	2.2	0.8	-0.4
74494	00	V	500	27	0	0	2.3	-0.3	0.3
74494	12	V	500	29	0	0	3.3	0.4	0.0
78016	00	V	500	27	0	0	3.0	-1.0	0.6
78016	12	V	500	30	0	0	3.7	-0.2	0.1

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45